URS 14 Branding
Lorenzo Lizardi, Studio Arts: Graphic Design ’22
Sydney Pitts, Studio Arts: Graphic Design ’22
Jane Frances Tse, Studio Arts: Graphic Design ’22
Program Layout & Design
Ralph Eurich Patacsil, Studio Arts: Graphic Design ’18
A Welcome from the Office of Research & Creative Arts

March 19, 2022

Dear LMU Students, Faculty, and Staff,

Welcome to the Fourteenth Annual Undergraduate Research Symposium! For over a decade, this event has been a campus-wide tradition celebrating the very best in faculty-mentored undergraduate research and creative projects at LMU.

This year’s Symposium returns in-person as a celebration not only of student research and the fantastic faculty-student partnerships that have come to define an LMU education, but also of the resilience and commitment of the many people that make up the LMU community. After two years of fantastic virtual Symposia, we come back together on our beautiful campus to celebrate a LMU tradition that never stopped, or even paused: Loyola Marymount’s unwavering commitment to academic excellence both inside and outside of the classroom. To this end, please engage with the over 110 posters lined up and down Alumni Mall, listen to and participate in the more than 85 oral presentations, panels, and arts showcase presentations in St. Robert’s Hall, and share a meal or some coffee with friends, family, and fellow presenters on St. Robert’s Grass.

We are pleased to feature student work from all five undergraduate colleges and schools. The diverse presentations will be intellectually stimulating for all. Among these sessions, students wrestle with complex issues, including changing perceptions of climate change depending on generation, media and the need for free speech, and the history of the California Justice System. They explore issues of domestic and foreign policy, benefits of dance for senior citizens, and concepts of gender and sexuality in the media. Finally, student discussions range from the connection between migration and trauma, risk preferences in the wake of COVID-19, attachment styles and responses to relationships, a smart menstrual cup initiative, and the characterization of black holes.

The Undergraduate Research Symposium provides an excellent opportunity for students, faculty, staff, parents, and members of the LMU community to actively engage with students who have been immersed in thought-provoking questions and global issues. In an increasingly complex world, it is important for students to take learning to a deeper and more integrated level. The work showcased today is evidence of this learning process. Congratulations to this year’s presenters and to all the students and faculty participating in the 2022 LMU Undergraduate Research Symposium!

Sincerely,

Kathleen Weaver, Ph.D.
Associate Provost for Research,
Professional Development and Online Learning

Elizabeth Wimberly-Young, M.F.A.
Associate Director,
Office of Research & Creative Arts
### Saturday, March 19, 2022

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<td>10:00am – 2:00pm</td>
<td>REGISTRATION</td>
<td>Alumni Crossroads</td>
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<tr>
<td>10:00am – 11:15am</td>
<td>ORAL SESSION I</td>
<td>1st and 3rd Floors, St. Robert’s Hall</td>
</tr>
<tr>
<td>11:00am – 1:00pm</td>
<td>POSTER SESSION I</td>
<td>Alumni Mall</td>
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<tr>
<td>11:20am – 12:35pm</td>
<td>ORAL SESSION II</td>
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<tr>
<td>12:40pm – 1:55pm</td>
<td>ORAL SESSION III</td>
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<tr>
<td>1:30pm – 3:30pm</td>
<td>POSTER SESSION II</td>
<td>Alumni Mall</td>
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<tr>
<td>1:55pm – 3:00pm</td>
<td>ORAL SESSION IV</td>
<td>3rd Floor, St. Robert’s Hall</td>
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<tr>
<td>3:00pm – 4:15pm</td>
<td>ORAL SESSION V</td>
<td>1st and 3rd Floors, St. Robert’s Hall</td>
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Oral and Poster Sessions
### STR 369: Voltage, Structure & Transfer

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<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Advisors</th>
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<tbody>
<tr>
<td>Damian Browne</td>
<td>Exploiting Causal Structure for Transportability in Online, Multi-Agent Environments</td>
<td>Andrew Forney</td>
</tr>
<tr>
<td>Ashley Salisbury, Patricio Osegueda, Katherine Hummer, Kennedy Necoechea</td>
<td>Trajectory and Heat Transfer of Ethanol Microdroplets through a Piezoelectric Generator</td>
<td>Mahsa Ebrahim</td>
</tr>
<tr>
<td>Ian Green, Natalia Cedeno</td>
<td>Infrared Optical Communication Relay System</td>
<td>Mohammadhossein Asghari</td>
</tr>
<tr>
<td>Stephen Sung, Anthony Orozco, Hannah Agbayani, Amer Almehmadi</td>
<td>Effect of Overaging on the Static Mechanical Properties of Aluminum Alloy AlSi10Mg Fabricated by Las</td>
<td>Allen Wilson Omar Es-Said</td>
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### STR 355: The Lab & Beyond

<table>
<thead>
<tr>
<th>Presenter</th>
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<tbody>
<tr>
<td>Lianlen Joy Distor</td>
<td>DEVELOPING HUMAN ISLET AMYLOID POLYPEPTIDE (HIAPP) MODELS USING SWISS PDB</td>
<td>David Moffet</td>
</tr>
<tr>
<td>Alexander Moore</td>
<td>Correlating Problem-Posing Patterns, Efficacy Beliefs, and Undergraduate Physics Student Success</td>
<td>Jeffrey Phillips</td>
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<tr>
<td>Megan Talbert, Emma Lee</td>
<td>Smart Menstrual Cup Initiative</td>
<td>Mohammadhossein Asghari</td>
</tr>
<tr>
<td>Brian Wells</td>
<td>The Impact of Over-activating Serotonin Receptor 2C in Developing Embryos</td>
<td>Maxellende Ezin</td>
</tr>
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### STR 356: Modeling & Magnetic Fields
### ORAL SESSION I
10:00 am – 11:15 am
1st and 3rd Floors, St. Robert's Hall

<table>
<thead>
<tr>
<th>Name</th>
<th>Presentation Title</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>Andrew Bruneel</td>
<td>Numerical Modeling of Dynamo Systems using MagIC</td>
<td>Emily Hawkins</td>
</tr>
<tr>
<td>Nathan Washecheck</td>
<td>Radial Saltwater Convection to Quantify Oceanic Flow of Rotating Bodies</td>
<td>Emily Hawkins</td>
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<tr>
<td>Angel Ruiz</td>
<td>Optimization of a Magnetohydrodynamic Pump</td>
<td>Emily Hawkins</td>
</tr>
<tr>
<td>Shane Murray</td>
<td>Newtonian Fractional-Dimension Gravity and Galactic Rotation Curves for NGC 5055</td>
<td>Gabriele Varieschi</td>
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### STR 104: The Final Frontier

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Juan Uribe</td>
<td>Characterization of EUP Black Holes</td>
<td>Jonas Mureika</td>
</tr>
<tr>
<td>Nicholas Ashby</td>
<td>Molecular Dynamics of Psychedelics</td>
<td>Jonas Mureika</td>
</tr>
<tr>
<td>Alexis McHugh</td>
<td>Rotation of Spiral Galaxies using the Extended Uncertainty Principle Modified Gravity</td>
<td>Jonas Mureika</td>
</tr>
<tr>
<td>Shelby Ferrier</td>
<td>Fast algorithms for statistical ranking with application to COVID-19 symptom scores</td>
<td>Junyuan Lin</td>
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### STR 106: Applications & Education

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<tr>
<th>Name</th>
<th>Presentation Title</th>
<th>Presenter</th>
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</thead>
<tbody>
<tr>
<td>Hunter Krasa</td>
<td>Developing a Software Synthesizer</td>
<td>Mandy Korpusik</td>
</tr>
<tr>
<td>Alexander Moore</td>
<td>A Sample Curriculum for Novice Quantum Computing</td>
<td>Mandy Korpusik</td>
</tr>
<tr>
<td>Maya Epps</td>
<td>An Android Application and Exercise Logging for a Spoken Language Diet Tracking System</td>
<td>Mandy Korpusik</td>
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</table>
### POSTER SESSION I
**11:00 am – 1:00 pm**
**Alumni Mall**

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<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Advisors</th>
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<tbody>
<tr>
<td>Audrey Covington</td>
<td>Examining the Temperature-dependence of HTLV-1 pro-pol Programmed -1 Ribosomal Frameshifting</td>
<td>Kathryn Mouzakis</td>
</tr>
<tr>
<td>Madison Maille</td>
<td>Investigating the Role of Base-Triples in the HTLV-1 pro-pol Frameshift Site Pseudoknot</td>
<td>Kathryn Mouzakis</td>
</tr>
<tr>
<td>Elena Martinez</td>
<td>A Mathematical Analysis of Reconstruction Artifacts in Radar Limited Data Tomography</td>
<td>Edward Mosteig</td>
</tr>
<tr>
<td>Mary Soliman</td>
<td>Stem-loop Structure Thermodynamic Stability and Frameshift Efficiency at the HTLV-1 gag-pro site</td>
<td>Kathryn Mouzakis</td>
</tr>
<tr>
<td>Kristal Stevens</td>
<td>Understanding and Improving Mononuclear Iron Photo-oxidation Catalyst Design</td>
<td>Emily Jarvis</td>
</tr>
<tr>
<td>Larry Milshteyn</td>
<td>The Effect of Multiple Stressors on Mytilus trossulus in an Ever-Changing Environment</td>
<td>Maria Vasquez</td>
</tr>
<tr>
<td>Osiris Guinea Zepeda</td>
<td>Effects of Temperature and Salinity on Superoxide Dismutase Activity in Mytilus galloprovincialis</td>
<td>Maria Vasquez</td>
</tr>
<tr>
<td>Cole Melton</td>
<td>Evaluating the suitability of the pSGDLuc reporter plasmid to measure HTLV-1 frameshift efficiency</td>
<td>Kathryn Mouzakis</td>
</tr>
<tr>
<td>Leila Robinson</td>
<td>UBTF tandem duplications predict poor outcome in FLT3-ITD+ pediatric acute myeloid leukemia</td>
<td>Kathryn Mouzakis</td>
</tr>
<tr>
<td>Keeby Tie</td>
<td>Environmental Heat Stress Exposure Increases Food Consumption Rate of Mytilus galloprovincialis</td>
<td>Maria Vasquez</td>
</tr>
<tr>
<td>Clare Houston, Claribel Alcantar</td>
<td>Multiple Stressors Interact to Influence the Metabolic Rate of the Mussel Mytilus Galloprovincialis</td>
<td>Maria Vasquez</td>
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<tr>
<td>Name</td>
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<tr>
<td>Alessandra Waller, Kathryn Inkrott</td>
<td>Standardizing a Procedure for Quantifying Testosterone from Gull Excreta</td>
<td>Kristen Covino</td>
</tr>
<tr>
<td>Clare Houston, Claribel Alcantar</td>
<td>Multiple Stressors Interact to Influence the Metabolic Rate of the Mussel Mytilus Galloprovincialis</td>
<td>Maria Vasquez</td>
</tr>
<tr>
<td>Ahmad Reza Mersaghian, Sarron Tadesse</td>
<td>A New Gene Expression Dataset for GRNsight: a Web Application for Visualizing Gene Network Models</td>
<td>John David Dionisio, Kam Dahlquist</td>
</tr>
<tr>
<td>Ona Igbinedion</td>
<td>New Databases and Export Features for GRNsight: a Web Application for Visualizing Models of GRNs</td>
<td>John David Dionisio, Kam Dahlquist</td>
</tr>
<tr>
<td>Camya Brazil</td>
<td>The Effect of Multiple Stressors on Mytilus Galloprovincialis' Clearance Rate</td>
<td>Maria Vasquez</td>
</tr>
<tr>
<td>Catherine Channell, Odoba Okwuosa</td>
<td>Isolating DNA from human hair to determine the frequency of the lactase persistence at SNP rs4988235</td>
<td>Kam Dahlquist</td>
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<tr>
<td>Alexis Chun</td>
<td>Developmental abnormalities in Melilotus alba induced by pilA mutant Sinorhizobium meliloti</td>
<td>Nancy Fujishige</td>
</tr>
<tr>
<td>Harrison Detroy</td>
<td>Microhabitat Preferences of Nesting Marsh Birds in the Ballona Freshwater Wetlands</td>
<td>Kristen Covino</td>
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<tr>
<td>Georgia Tully</td>
<td>Computational Investigation of Twisted Aromatic Hydrocarbons</td>
<td>Emily Jarvis</td>
</tr>
<tr>
<td>Riley Brown</td>
<td>Factors Affecting Alcohol Consumption Patterns Amongst Students at Southern California Universities</td>
<td>Christopher Cappelli</td>
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<tr>
<td>Emma Murphy</td>
<td>Internal Speech Error Correction Mechanism</td>
<td>Kayoko Okada</td>
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<td>Sidney Starr</td>
<td>Investigating proposed novel mononuclear first row transition metal catalysts for photooxidation</td>
<td>Emily Jarvis</td>
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<tr>
<td>Francesca Conte</td>
<td>Investigation of the Santa Monica Bay Phytoplankton Community in Relation to Seasonal Changes</td>
<td>Amber Bratcher-Covino</td>
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<tr>
<td>Paul Lussman</td>
<td>Investigating how seed priming impacts the germination of California native plant species</td>
<td>Michelle Lum</td>
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<tr>
<td>Francesca Conte, Alexa Lutz</td>
<td>Discovering and Analyzing Harmful Algal Bloom Trends in Los Angeles Waters</td>
<td>Amber Bratcher-Covino</td>
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<tr>
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<tr>
<td>Grace Bruess, Sarah Hofmeister, Daniella Nanula</td>
<td>Fluctuating asymmetry indicates developmental stress in N. lepida, P. maniculatus, and O. torridus</td>
<td>Wendy Binder</td>
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<tr>
<td>James Roe</td>
<td>Chemical defenses of Silvetia compressa across nutrient gradients</td>
<td>Sarah Bittick</td>
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<td>Karen Mai</td>
<td>Co-inoculation of Bacillus simplex and Sinorhizobium meliloti enhances nodulation of Melilotus alba</td>
<td>Nancy Fujishige</td>
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<tr>
<td>Veronica Casarez, Tatum Laird</td>
<td>JAK/STAT signaling in the context of RNAi-induced hematopoietic phenotypes</td>
<td>Cory Evans</td>
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<tr>
<td>Abigail Massar, Logan Ader, Trenton VerKuilen</td>
<td>The Effect of Prolonged Thermal Exposure on the Mechanical Properties of 3D Printed AlSi10Mg Alloy</td>
<td>Omar Es-Said</td>
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<tr>
<td>Stephen Sung, Abigail Massar, Logan Ader, Lauren Tully</td>
<td>The Effect of Heat Treatment on Tensile and Fatigue Properties of LPBF Ti-6Al-4V Titanium Alloy</td>
<td>Omar Es-Said</td>
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<tr>
<td>Marceline Burnett</td>
<td>Foliar Water Uptake in Larrea tridentata</td>
<td>Philippa Drennan</td>
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<td>Stephen Sung, Hannah Agbayani, Amer Almehmadi, Matthew Bentsen, Logan Ader</td>
<td>Effect of Overaging on the Static Mechanical Properties of AlSi10Mg Fabricated by Laser Powder Bed</td>
<td>Omar Es-Said</td>
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<tr>
<td>Rosetta Hu</td>
<td>Food Classification in a Spoken Diet Tracking System</td>
<td>Mandy Korpusik</td>
</tr>
<tr>
<td>Lianlen Joy Distor, Khushi Singh, Sarah Lu, Aaliyah Tyson,</td>
<td>Prevention of the Aggregation of Human Islet Amyloid Polypeptide</td>
<td>David Moffet</td>
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<td>Joy Lee, Lauren Phillips, Philippe LeGuellec</td>
<td>Investigation of the relationship of lipopolysaccharide of Paraburkholderia tuberum in nodulation of</td>
<td>Michelle Lum</td>
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<td>Shelby Ferrier</td>
<td>Fast algorithms for statistical ranking with application to COVID-19 symptom scores</td>
<td>Junyuan Lin</td>
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<td>Caroline Ehren</td>
<td>Effect of hydrogen peroxide priming on the germination of native seeds under drought stress</td>
<td>Michelle Lum</td>
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<tr>
<td>Kayleigh Bhatt, Roger Ratnam, Joshua Poura, Kamilah Roca-Datzer</td>
<td>Assessing the conserved functions of Aim32, a thioredoxin-like ferredoxin mitochondrial protein</td>
<td>Deepa Dabir</td>
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<tr>
<td>Rodolfo Zarate, Simone Rezentes</td>
<td>A Study of Nails as Connections in Wood-Framed Structures</td>
<td>Michael Manoogian</td>
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<tr>
<td>Kasra Arjomand</td>
<td>Identification of Plant Associated Bacteria Able to Tolerate Abiotic Stress</td>
<td>Michelle Lum</td>
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<tr>
<td>Roland Troyan</td>
<td>Zostera marina sediment blue carbon stock in relation sediment grain size and nutrients</td>
<td>Sarah Bittick</td>
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<tr>
<td>Colby Mallett</td>
<td>Effect of Urbanization on Coyote Abundance in Culver City</td>
<td>Eric Strauss, Melinda Weaver</td>
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<tr>
<td>Garrett Ponce</td>
<td>High Speed Nanometer Resolution Interferometry</td>
<td>Mohammadhossein Asgari</td>
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<td>John Omiya, Daniel Nguyen</td>
<td>Investigating Novel mRNA Binding Proteins Using a Reporter mRNA</td>
<td>Sarah Mitchell</td>
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<td>Leo Tanaka</td>
<td>Development of Low-Cost Water Quality Sensors</td>
<td>James Landry</td>
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<tr>
<td>Konstantin Danielyan, Alexander Barber, Leah Mizuno, Khaliah Clark, Khaliah Sanders</td>
<td>Interaction of RGG-motif peptides with MYC promoter G-quadruplex</td>
<td>Jeremy McCallum</td>
</tr>
<tr>
<td>Name</td>
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<td>Presenter</td>
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<tr>
<td>Finnegan Mercer, Aishwarya Bhutkar</td>
<td>Identification of mRNAs Bound to tRNA Synthetase Enzymes</td>
<td>Sarah Mitchell</td>
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<tr>
<td>Patrizia Marie Tandinco, Belen Carrasco-Cazares</td>
<td>Does Size Really Matter? A Taphonomic Comparison of Small and Large Mammals</td>
<td>Wendy Binder</td>
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<tr>
<td>Caroline Thorpe</td>
<td>The impact of water temperature on Zostera marina seagrass morphology</td>
<td>Sarah Bittick</td>
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<tr>
<td>Danielle Hjerpe</td>
<td>Environmental Justice in General Chemistry</td>
<td>Nicole Bouvier-Brown</td>
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<tr>
<td>Abigayle Gill</td>
<td>Tend: Cultivating Biodiversity</td>
<td>Garland Kirkpatrick</td>
</tr>
<tr>
<td>Anna Monterastelli</td>
<td>Diet Analysis of Scat from Coyote Pack in Culver City</td>
<td>Melinda Weaver</td>
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<tr>
<td>Christina Noravain</td>
<td>A Comparative Analysis of Cardiac Neural Crest Cell Migration in Chicken and Turtle Embryos</td>
<td>Maxellende Ezin</td>
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<tr>
<td>Sabriya Seid</td>
<td>Native Plant ‘Zines’ to Promote Ecological Restoration at Ascot Hills Park</td>
<td>Demian Willette</td>
</tr>
<tr>
<td>Amberly Hershewe</td>
<td>Differentiation of Southern California seagrass species, Zostera marina and Zostera pacifica</td>
<td>Demian Willette</td>
</tr>
<tr>
<td>Evette Mestetsky</td>
<td>Invasive Plant Brush Piles as a Means for Habitat Conservation and Restoration</td>
<td>Demian Willette</td>
</tr>
<tr>
<td>Eric Scharberg</td>
<td>Relationship Between Flammability and Leaf Functional Traits of Native and Non-native Plants Species</td>
<td>Demian Willette</td>
</tr>
<tr>
<td>Rukhbaan Hayer</td>
<td>Identifying an Effective and Accessible Instrument for Passive eDNA Collection</td>
<td>Demian Willette</td>
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STR 357: Education & Family

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<tr>
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<tbody>
<tr>
<td>Lydia Zicker</td>
<td>The Impact of Transracial Adoption on Racial Justice Allyship in Non-Adopted White Siblings</td>
<td>Adam Fingerhut</td>
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<tr>
<td>Jordyn Patterson</td>
<td>Underfunded Schools and Their Impact on Students’ Education</td>
<td>Annamaria Muraco</td>
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<tr>
<td>Veronica Gomez</td>
<td>Analyzing Family Dynamics and Student's Duration in the Upward Bound Program</td>
<td>Stephanie Limoncelli</td>
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STR 358: Risk, Health & Bias

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<tr>
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<tbody>
<tr>
<td>Annie Heckman</td>
<td>Refugee Health in the United States</td>
<td>Rachel Washburn</td>
</tr>
<tr>
<td>Matthew Cavanaugh</td>
<td>The Stability of Risk Preferences in the Wake of COVID-19</td>
<td>Dorothea Herreiner</td>
</tr>
<tr>
<td>Daisy Huerta</td>
<td>The Multiple Meanings of Bias in Debates About the Accuracy of Pulse Oximeters</td>
<td>Rachel Washburn</td>
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STR 366: Communication & Cognition

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<tr>
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<tbody>
<tr>
<td>Layla Rainosek, Carly Coleman, Dana Elqaq</td>
<td>Attachment style and responses to romantic relationship events</td>
<td>Maire Ford</td>
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<tr>
<td>Cameo Brown</td>
<td>TMT: Transferability of Microexpression Training</td>
<td>Chela Willey</td>
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<tr>
<td>Hannah Agbaroji, Scarlett Manning</td>
<td>Cognition, Motor Ability, and Workload</td>
<td>David Hardy</td>
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<tr>
<td>Anne Burke</td>
<td>How Significant Others of Military Personnel Maintain Communication within their Relationships</td>
<td>Meng Li</td>
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STR 367: Activism & Identity
### ORAL SESSION II
11:20 am – 12:35 pm
3rd Floor, St. Robert’s Hall

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Kylie Francisco</td>
<td>SOMEBODIES in Motion: Politics of the Body in Protest &amp; Its Mobilizing Effects</td>
<td>Michael Genovese</td>
</tr>
<tr>
<td>Malia Thornton</td>
<td>Lifting As We Climb: Black Women’s Activism and Generational Legacies</td>
<td>Chaya Crowder</td>
</tr>
<tr>
<td>Erica Riray</td>
<td>The Portrait of a Nation: Visualizing Filipino American Political Identity in Los Angeles</td>
<td>Chaya Crowder</td>
</tr>
<tr>
<td>Ava Totah</td>
<td>Strong Linguistic Relativity</td>
<td>Brian Treanor</td>
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### STR 354: Perceptions & Policies

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Rebecca Singleton</td>
<td>The Effect of Natural Disasters on Approval Ratings</td>
<td>Thomas Herndon</td>
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<tr>
<td>Miles Melendres</td>
<td>Cycles of Violence in Armed Conflict</td>
<td>Kerstin Fisk</td>
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<tr>
<td>Paulina Rezendes</td>
<td>The Influence of Energy on Domestic and Foreign Policies in Central and Eastern Europe</td>
<td>Fariel Cherif</td>
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</table>
### ORAL SESSION III
12:40 pm – 1:55 pm  
1st and 3rd Floors, St. Robert’s Hall

<table>
<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Advisors</th>
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<tbody>
<tr>
<td>Samantha Wilson</td>
<td>Environmental Communication Methods: Exploring community engagement with nature based solutions</td>
<td>Judy Battaglia</td>
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<tr>
<td>Comer Wadzech</td>
<td>Building Los Angeles: The Bitter Fight for a Harbor at San Pedro</td>
<td>Kevin McDonald</td>
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<td>Dezmin Hemmans</td>
<td>Black Homelessness in Los Angeles</td>
<td>Rosemary Kim</td>
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<th>Presenter</th>
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<tr>
<td>Andrea Guardiola</td>
<td>Healing Justice</td>
<td>Mairead Sullivan</td>
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<tr>
<td>Elisabeth Lewis</td>
<td>Queer Performativity in Social Media</td>
<td>Mairead Sullivan</td>
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<tr>
<td>Jolie Brownell</td>
<td>The White Supremacist Roots of Diversity, Equity, and Inclusion</td>
<td>Mairead Sullivan</td>
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<tr>
<td>Harrison Hamm</td>
<td>Queer Hauntology</td>
<td>Mairead Sullivan</td>
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### STR 355: Discourse, Economics & Mental Health

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<tr>
<th>Presenter</th>
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<tbody>
<tr>
<td>Declan Tomlinson</td>
<td>Code Red: An Exploration of Degrowth Economics</td>
<td>Gabriele Magni</td>
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<td>Richard Fox</td>
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<tr>
<td>Olivia Bledsoe</td>
<td>Smart Screen or Smoke Screen?</td>
<td>Alexandra Sturm</td>
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<tr>
<td>Grayson McKim,</td>
<td>Interaction and Mental Health</td>
<td>Joshua Morgan</td>
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<td>Aiden Meyer</td>
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</tbody>
</table>

### STR 104: PANEL | Social Justice in Action: Service and Engaged Learning Experiences
| Caden Young | Streetread: Teaching Culture in Poetry | Judith Royer |
| Brittany Lee | ARTsmart and Social Justice through Art Education | Judith Royer Teresa Lenihan |
| Emil Sol | Latin American Women Writers: 40 in their 40’s | Judith Royer |
| Lillianna Slaughter, Kaitlynn Pimentel | Suwandi Foundation Yayasan LMU | Bernadette Musetti |

<p>| | | |
| | | |
| <strong>STR 356: The Important of Rhetoric</strong> | |
| David Stottner | Analyzing US-China Relations through News Media | Gene Park |
| Maxwell Himmelright | In Defense of Free Speech: Section 230 and the Marketplace of Ideas | Evan Gerstmann |
| Rachel King | Boomers vs. Snowflakes: Exploring the Generational Differences in Climate Change Communication | Janie Steckenrider Richard Fox |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Rickelle Williams</td>
<td>The Carcerality of Misogynoir: Decrypting Asylums, Policing, and Mental Hygiene Law</td>
<td>Andrew Dilts</td>
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<tr>
<td>Julia Trudeau, Samantha Cheng, Elizabeth Hecht, Paola Cervantes, Eylul Akgul</td>
<td>Unconscious Priming From New Vocabulary Words Learned in a Single Session</td>
<td>Richard Abrams</td>
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<tr>
<td>Sophia Flores</td>
<td>Perception of personal finances between racial and ethnic groups</td>
<td>Brianne Gilbert</td>
</tr>
<tr>
<td>Alyson Chie</td>
<td>Arts, Culture, and Economic Development: Angelenos’ Views on Arts Facilities and Cultural Festivals</td>
<td>Brianne Gilbert</td>
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<tr>
<td>Sandra Kechichian</td>
<td>Relationship Between Performance on Flanker Test &amp; Theta EEG PSD Differentials During Resting State</td>
<td>Judith Foy</td>
</tr>
<tr>
<td>Nelly Carrillo</td>
<td>Unexpected Outcomes: The Future of Alternative Working Environments</td>
<td>Brianne Gilbert</td>
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<tr>
<td>Charlotte Spencer, Maxine Boyd, Yericka Rose</td>
<td>Attachment style and responses to romantic relationship events</td>
<td>Maire Ford</td>
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<tr>
<td>Simona Vishnevsky</td>
<td>Impacts of Shifting Demographics in Los Angeles on Elected Leaders</td>
<td>Fernando Guerra</td>
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<tr>
<td>Lucas Verderese</td>
<td>COVID-19: How Opinions and Beliefs Correlate to Political Ideology</td>
<td>Brianne Gilbert</td>
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<tr>
<td>Ann Huff</td>
<td>El papel de la Organización de Mujeres en la lucha contra el feminicdio: El Salvador y Guatemala</td>
<td>Ashleigh Campi</td>
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<tr>
<td>Elena Martinez, Veronica Backer-Peral, Andrew Seaman</td>
<td>Identifying bias in news media: A natural language processing approach</td>
<td>Andrew Forney</td>
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<tr>
<td>Denise Espinoza</td>
<td>Intimate Partner Violence Perpetration among the LGBTQ Military/Veteran Population</td>
<td>Min Yoo</td>
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<tr>
<td>Name</td>
<td>Title</td>
<td>Co-author(s)</td>
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<tr>
<td>Noemi Flores</td>
<td>Emotions, Environmental Engagement, &amp; Environmental Education</td>
<td>Vandana Thadani</td>
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<tr>
<td>Riley McCoy</td>
<td>Defining Teacher Authority and the Protection of the Educational Process</td>
<td>Andrew Dilts</td>
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<tr>
<td>Judith Chavez-Cardenas</td>
<td>Understanding Communities of Color, COVID-19 Vaccination Concerns, and Vaccine Ad. Strategies</td>
<td>Annamaria Muraco</td>
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<tr>
<td>Francesco Fimiani</td>
<td>Searching for Euro-Mediterranean Synergies: Economic and Human Development gaps in Mare Nostrum</td>
<td>Fariel Cherif</td>
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<tr>
<td>Jordan White</td>
<td>“Red and White, Blue Suede Shoes”: How Contemporary Music Influences Political Behavior in the U.S.</td>
<td>Michael Genovese Richard Fox</td>
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<tr>
<td>Tessa Muller</td>
<td>What Drives Opposition to Immigration - An Analysis of Sicily, Italy</td>
<td>Gabriele Magni</td>
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<tr>
<td>Amani Ortiz-Syed</td>
<td>Immigration and Incarceration: A Sociological Exploration of Systems of Detention</td>
<td>Annamaria Muraco</td>
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<td>Collin Cate</td>
<td>Controlling the Vote: A Mixed Methods Analysis of Republican Voter Restriction</td>
<td>Richard Fox</td>
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<tr>
<td>Sandra Kechichian, Sofia Cabrera, Gabriela Barba, Luciana Hernandez</td>
<td>Non-Pharmacological Interventions for Chronic Pain in Emerging Adults: A Systematic Review</td>
<td>Judith Foy</td>
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<tr>
<td>Elizabeth Hecht</td>
<td>Transgender-Specific Legislation and the Well-Being of Transgender Individuals</td>
<td>Nora Murphy</td>
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<td>Ryan Cochran</td>
<td>Angelenos and the Perception of Encampments</td>
<td>Brianne Gilbert</td>
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<td>Dylan Flood</td>
<td>Housing Affordability in Los Angeles</td>
<td>Brianne Gilbert</td>
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<td>Simona Vishnevsky, Salonee Dangoria, Serena Short</td>
<td>Effects of Storytelling on Emotional Distress in Hospitalized Children</td>
<td>Nora Murphy</td>
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<td>Corinne Oliver</td>
<td>The Topic of Trust: Angelenos and the Police</td>
<td>Brianne Gilbert</td>
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<tr>
<td>Ashley McCluskey</td>
<td>Park Equity in Los Angeles County</td>
<td>Brianne Gilbert</td>
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<tr>
<td>Halley Jeanne Dante</td>
<td>The Moderating Effect of Discipline on Community and Distance Learning Outcomes During COVID-19</td>
<td>Terese Aceves</td>
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<tr>
<td>Breanna Velasco</td>
<td>Political Polarization on TikTok: An Experimental Investigation of the Effects of TikTok’s Algorithm</td>
<td>Janie Steckenrider</td>
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<tr>
<td>Emily Pita</td>
<td>Political Party Affiliations of Cuban-Americans</td>
<td>Juan Mah y Busch</td>
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<tr>
<td>Maya Rosenman</td>
<td>How do Laypeople and Professionals Define Diversity, Equity, and Inclusion?</td>
<td>Michael Mills</td>
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<tr>
<td>Michelle Chernikova</td>
<td>Does acting training matter in relations between emotion regulation, granularity, and mental health?</td>
<td>Diana Santacrose</td>
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<tr>
<td>Sara Eberle</td>
<td>ASK-IT Autism Social Functioning Measure</td>
<td>Alexandra Sturm</td>
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<td>Aurora S</td>
<td>Visual Field Dependence in Swimmers</td>
<td>Chela Willey</td>
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<tr>
<td>Michelle Chernikova</td>
<td>Investigating Emotion Processing, Risky Choice, and Cognitive Reflection</td>
<td>Chela Willey</td>
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<td>Esmeralda Bruce-Romo</td>
<td>TikTok’s Censorship of Black Voices</td>
<td>Juan Mah y Busch</td>
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<tr>
<td>Myles Kovalik</td>
<td>Writing &quot;The Other&quot; into a Feature Screenplay: &quot;The Show Must Go On&quot;</td>
<td>Katerina Zacharia</td>
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<tr>
<td>Amber Rivera</td>
<td>Neoliberalism and Reggaetón: How Neoliberalism Affects Cultural Artistic Expression</td>
<td>Juan Mah y Busch</td>
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<tr>
<td>Chloe Hightower</td>
<td>GREECE: FROM MYTHOLOGY TO FILM</td>
<td>Katerina Zacharia</td>
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<tr>
<td>Katherine Hernandez Comasil</td>
<td>Distribution and Consumption of the Digital Other: Portrayals of Spanish-Speaking Cultures on Netflix</td>
<td>Kyra Pearson</td>
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<tr>
<td>Zyrah Susarrey</td>
<td>The Role of Augmented Reality in Virtual Los Angeles</td>
<td>Selwa Sweidan</td>
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<tr>
<td>Matthias Tran</td>
<td>Elgin’s Crime in Athens: The Case of The Parthenon Marbles</td>
<td>Melody Rodari</td>
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<tr>
<td>Charles Luxton</td>
<td>Testing Efficiency in NHL Betting Markets</td>
<td>David Moore, Joshua Spizman</td>
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<tr>
<td>Shanequowa Love</td>
<td>Decreasing Human Trafficking: An Analysis of Youth With the Foster Care System</td>
<td>Heather Tarleton</td>
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</table>
**POSTER SESSION II**  
1:30 pm – 3:30 pm  
*Alumni Mall*

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Riley McCoy</td>
<td>Defining Teacher Authority and the Protection of the Educational Process</td>
<td>Andrew Dilts</td>
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<tr>
<td>Michael Liu</td>
<td>Exploring Resilience in College Students</td>
<td>Jennifer Abe</td>
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<tr>
<td>Comer Wadzeck</td>
<td>Building Los Angeles: The Bitter Fight for a Harbor at San Pedro</td>
<td>Kevin McDonald</td>
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<tr>
<td>Lizabeth Ramales Arango</td>
<td>Undocumented Students in Higher Education</td>
<td>Juan Mah y Busch</td>
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<tr>
<td>Camila Rivera</td>
<td>Making the Invisible Visible: A Representation of Queer Lesbian IPV</td>
<td>Juan Mah y Busch</td>
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<tr>
<td>Mei Vilanova</td>
<td>On Track</td>
<td>Garland Kirkpatrick</td>
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<tr>
<td>José Miguel Camacho</td>
<td>Who Do You Say That I Am?: An Exploration of Whiteness in the Catholic Church</td>
<td>Garland Kirkpatrick</td>
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<tr>
<td>Kaila Kim</td>
<td>COLOR SCHEME</td>
<td>Samir Naimi</td>
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<td>Lorenzo Lizardi</td>
<td>Invisible Barriers</td>
<td>Garland Kirkpatrick</td>
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<td>Anne van Wijngaarden</td>
<td>The Double Life of A Sex Worker</td>
<td>Garland Kirkpatrick</td>
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## STR 357: Policy & Consciousness

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<tr>
<th>Presenter</th>
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<tbody>
<tr>
<td>Vanessa Maldonado</td>
<td>Migration to Massacre, Deportation to Death: The Guatemalan History of Displacement</td>
<td>Margarita Ochoa</td>
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<tr>
<td>Sabine Caplin</td>
<td>Policy, Press, and Public Opinion: An Exploration of Attitudes towards Syrian Refugees</td>
<td>Richard Fox</td>
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<td>Madison Dailey</td>
<td>More Twitter, Less CNN</td>
<td>Richard Fox</td>
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<tr>
<td>Robert Baransaka</td>
<td>The Black Band, They Play in November: A Collective Ideology or An Unraveling Cohesion</td>
<td>Claudia Sandoval, Richard Fox</td>
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</table>

## STR 358: Youth, Education & Institutions

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<thead>
<tr>
<th>Presenter,</th>
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<tbody>
<tr>
<td>Catherine Kennedy, Cristina Pedler, Natalie Robinson</td>
<td>Reconsidering Mandated Reporting in Educational Institutions</td>
<td>Todd Martinez</td>
</tr>
<tr>
<td>Mirian Melendez</td>
<td>Life Inside Juvenile Detention: The impact of Educational, Rehabilitative, &amp; Trauma-focused program</td>
<td>Annamaria Muraco</td>
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<tr>
<td>Teresa Lechuga-Kanapilly</td>
<td>The History of the California Justice System and its Effects on Latinx Immigrant Youth</td>
<td>Eliza Rodriguez y Gibson</td>
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## STR 366: Media & Entertainment

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<tr>
<th>Presenter,</th>
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<tbody>
<tr>
<td>Cobe Alvarez</td>
<td>Reframing Body Horror and the Othered Body</td>
<td>Mikki Kressbach</td>
</tr>
<tr>
<td>Harrison Hamm</td>
<td>Dark Comedy in Queer Television: Negotiating Aesthetics of Neoliberalism and the Death of Camp</td>
<td>Sina Kramer</td>
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<tr>
<td>Bettina Ernst, Jennifer Valentine</td>
<td>Queer Gender and Sexuality Versus Traditional Systems of Power in Popular Anime Series</td>
<td>Susan Scheibler</td>
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<tr>
<td>Blake Marquez</td>
<td>Constructing Indigeneity: The Mediatization of Indigeneity in Children’s and Journalism Media</td>
<td>Christopher Finlay</td>
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ORAL SESSION IV
1:55 pm – 3:00 pm
3rd Floor, St. Robert’s Hall
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<tr>
<th>STR 367: Visual Identity</th>
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<tr>
<td><strong>Emma Balda</strong></td>
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<tr>
<td>Institutionalizing Identity: Examining the Louvre in Revolutionary and Napoleonic France</td>
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<tr>
<td><strong>Amy Woodson-Boulton</strong></td>
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<td><strong>Julia Koo</strong></td>
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<tr>
<td>Female Gamers and Social Media: How Gender Norms are Perpetuated Online</td>
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<tr>
<td><strong>Annamaria Muraco</strong></td>
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<tr>
<td><strong>Emma Castro</strong></td>
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<td>The Creation of a National Narrative: The Parthenon Marbles as Cultural Heritage for Greece and Britain</td>
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<td><strong>Katerina Zacharia</strong></td>
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<td><strong>Kyla Yein, Cobe Alvarez</strong></td>
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<tr>
<td>Power in Play: An Analysis of Hierarchies in Gaming Communities</td>
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<td><strong>Susan Scheibler</strong></td>
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<tr>
<th>STR 354: Past, Present, Future (LMU)</th>
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<tbody>
<tr>
<td><strong>Alaysia Barker-Vaughn</strong></td>
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<td>Spark Your Future</td>
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<tr>
<td><strong>Brad Stone</strong></td>
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<tr>
<td><strong>Rebecca Singleton</strong></td>
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<tr>
<td>The Lamp Project at LMU</td>
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<tr>
<td><strong>Caroline Sauvage</strong></td>
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<tr>
<td><strong>Myles Dement</strong></td>
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<tr>
<td>1992: A Documentary</td>
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<td><strong>Elena Muslar</strong></td>
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## STR 369: Film & Performance

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<tbody>
<tr>
<td>Booker Martin</td>
<td>Fractured Sky: Crafting a Dynamic Tactical Role-Playing Game Through Procedural Generation</td>
<td>Andrew Forney</td>
</tr>
<tr>
<td>Carson Bennett</td>
<td>Two Hundred Feet Off The Ground</td>
<td>Eugene Brancolini</td>
</tr>
<tr>
<td>Jeremy Lee</td>
<td>Jeremy Lee in a Senior Composition Recital</td>
<td>David Carter, Mark Saya</td>
</tr>
<tr>
<td>Brian Reyes</td>
<td>The Costa Rican Accent</td>
<td>Daphne Sicre, Kevin Wetmore, Andrea Obinov</td>
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</table>

## STR 104: PANEL | Aristotelian Character and Friendship

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<tbody>
<tr>
<td>Anacan Mangelsdorf</td>
<td>Friendship with a Virtuous Person as a Solution to the Problem of Acquiring Virtue</td>
<td>Erin Stackle</td>
</tr>
<tr>
<td>Kiarah Hewitt</td>
<td>The Conservation of Generosity Through Virtuous Friendship</td>
<td>Erin Stackle</td>
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<tr>
<td>Victor Hernandez</td>
<td>The Akrasia in Their Eyes</td>
<td>Erin Stackle</td>
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<td>Angelo-Ramil Vitug</td>
<td>The Impossibility of Maternal Friendship</td>
<td>Erin Stackle</td>
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<tr>
<td>Matt Lamantia</td>
<td>Aristotle on Akrasia: How Those Who Know Better Can Do Worse</td>
<td>Erin Stackle</td>
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## STR 106: Dance & Movement

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<tbody>
<tr>
<td>Eve Robinson</td>
<td>Benefits of Dance for Geriatrics</td>
<td>Kristen Smiarowski</td>
</tr>
<tr>
<td>Kennedy Schuelke</td>
<td>Rehabilitation and Resetting: Resources for Dancers from Physical Therapists</td>
<td>Kristen Smiarowski, Mavis Rode</td>
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</tbody>
</table>
1992: A Documentary

Myles Dement

I am directing and producing a short documentary about the Black student experience on LMU’s campus around the early 90’s, specifically around the time of the Rodney King Riots. Using LMU history, I will explore the theory that liberal arts universities are utopic bubbles flowing with acceptance and diversity, and instead examine how universities are raw reflections of the communities that surround them, the good and the bad.

I will gather research for this research documentary topic through interviews with past Black LMU alumni and faculty/staff, investigating through Loyolan articles from the early 90's for info on the social climate and views of students/faculty during that time, and searching for similar news footage/media of campus around the 90’s, as well as that of the Rodney King Riots. I plan to shoot the documentary on March 11-13th, but research for this documentary will continue well into post-production.

A Comparative Analysis of Cardiac Neural Crest Cell Migration in Chicken and Turtle Embryos

Christina Noravian

The cardiac neural crest (CNC) is a population of progenitor cells that migrate from the neural tube to the branchial arches, ultimately reaching the heart to form the aorticopulmonary and interventricular septum. As adults, mammals, crocodiles, and birds have a complete interventricular septum, while reptiles exhibit various presentations of partial septa. In reptilian species, development of the cardiac neural crest is poorly understood. This study compares migration of cardiac neural crest cells in chicken and turtle embryos to characterize neural crest contributions to the cardiac branchial arches (BA 3, 4, and 6) in organisms with incomplete interventricular septation. Panels of chick cardiac neural crest migration from stages 14-17 were generated as a baseline against which to compare neural crest migration in turtle embryos. To track CNC migration out of the neural tube, turtle embryos were injected at 9 days post-fertilization and collected at day 13. The neural tube at the level of the cardiac neural crest (as known from mouse and chick) was either filled with the lipophilic dyes DiI/DiO or the cell-membrane marker, CMDiI. Preliminary results show labeling of the turtle neural tube, migration of the cardiac neural crest, as well as the cranial, enteric and vagal neural crest. Additionally, cardiac neural crest cells in turtle exhibited segmental migration, a phenomena characteristic of the trunk region yet never seen before in chick. Understanding the development of cardiac neural crest cells in an organism with incomplete septation provides insights into human congenital heart disease, where the interventricular septum incompletely forms.

A Mathematical Analysis of Reconstruction Artifacts in Radar Limited Data Tomography

Elena Martinez

In the study of tomography, there are often missing data values. This leads artifacts to present themselves in data reconstructions. We investigate this problem in a bistatic radar system that has a radio transmitter in a fixed location and a receiver flying around the transmitter in a circular path. Our data is collected by integrating over all ellipses in a given space that have the transmitter and receiver as foci. We reconstruct this numerical data and analyze the artifacts that present themselves when we place objects within and outside of the receiver’s path. Our research demonstrates how objects outside the receiver's path can create artifacts inside the receiver's path and vice versa. This shows an intrinsic limitation to a method that works well when the scanned region outside the receiver's path is clear.
A New Gene Expression Dataset for GRNsight: a Web Application for Visualizing Gene Network Models
Ahmad Reza Mersaghian, Sarron Tadesse

GRNsight is an open-source web application and service for visualizing models of gene regulatory networks (GRNs). A gene regulatory network consists of genes, transcription factors, and the regulatory connections between them which govern the level of expression of mRNA and protein from genes. GRNmap is a MATLAB program that performs parameter estimation and forward simulation of a differential equations model of a GRN based on user-provided expression data. GRNsight reads Microsoft Excel input and output workbooks from GRNmap and automatically displays the model data as a graph. Graph edges are color-coded based on the activation and repression relationships between the transcription factors, and nodes are color-coded with time course gene expression data provided by the user or retrieved from the backend database. To expand the potential research scope, a new expression dataset was chosen to be added to the GRNsight database. Apweiler et al. (2012) measured gene expression changes over time in Saccharomyces cerevisiae due to adding glucose to the media. To clean this dataset for inclusion in the database, we needed to remove duplicate data and assign the correct ID types. To further analyze the data with GRNmap, we clustered with STEM to identify significant expression profiles and inferred the gene regulatory network with YEASTRACT. After running GRNmap, we visualized the results of the model using GRNsight. In parallel, ongoing development of GRNsight is focused on fixing bugs and adding enhancements to the user interface and graph layout. GRNsight is freely available at http://dondi.github.io/GRNsight/.

A Sample Curriculum for Novice Quantum Computing
Alexander Moore

Quantum computing is a field that has only begun receiving legitimate scientific attention in the past 30 years, and public attention in the past decade. As a result, many academic institutions have yet to implement proper quantum computing courses in their curricula. Additionally, online quantum-computing resources for learners of all backgrounds are limited and often lacking in cohesion and clarity, potentially alienating new participants in the field. This project attempted to remedy this issue by creating a sample “Novice Quantum Computing” course model and distributing example videos of lectures online. Initially, research was conducted by investigating quantum computing concepts through textbooks and online videos. It was then determined which concepts were most vital in a student’s understanding of the subject, and which concepts lacked a sufficiently detailed explanation. A mock-syllabus was created for a theoretical 6-week course that would introduce students to crucial yet complex quantum algorithms at a steady pace. Furthermore, a series of 11 lectures was posted to YouTube throughout the summer of 2021 to accompany this curriculum. This course idea has potential for implementation at Loyola Marymount University, the options for which have yet to be explored. This project contributes to the field of quantum computing by synthesizing its most crucial principles and increasing accessibility to the field for new learners.

A Study of Nails as Connections in Wood-Framed Structures
Rodolfo Zarate, Simone Rezentes

A literature review was conducted to determine the types of nails most commonly used in construction and their typical applications. Testing was done in order to study the strength of three common single-shear nailed and toenail lumber connections. The connections were configured and built and the NDS Wood Connection Calculator was used to calculate the design value and yield modes of three connections. The connections were built using Douglas fir-larch 2x4 nominal lumber, 20-gauge Simpson Strong-Tie steel side-plates, and common nails were used for testing. The first connection was made between a steel plate and a 2”x4” using a 6d common nail. The second connection was made between two 2”x4’s using a 10d common nail. Those connections were tested in shear using an Instron Press. The final connection was a toenail connection which used four 8d nails and was tested using a lateral shear force. It was found that the tested values of the connections were notably higher than that of the design value as well as the yield modes. This led to the conclusion that design calculations are conservative relative to their real-life performance.
An Android Application and Exercise Logging for a Spoken Language Diet Tracking System
Maya Epps

Prior work in Natural Language Processing (NLP) has explored the application of spoken language understanding to nutrition and exercise in hopes of promoting and simplifying a healthy lifestyle. In an earlier stage of this work, the iOS app Coco Nutritionist was developed to allow a user to give a spoken sentence describing a meal they ate as though messaging a friend, and Coco Nutritionist will quickly log that meal and its nutrition information using state-of-the-art machine learning models trained on a large corpus of example meal logs. Coco Nutritionist matches each food to an entry in the US Department of Agriculture (USDA) database of foods to retrieve and log the meal’s nutritional information. In this project, we explored improvements to Coco Nutritionist, including analyzing ways of integrating additional functionality to record spoken language exercise logs using a previously generated exercise corpus. We also laid the foundation for an Android version of Coco Nutritionist. The Android app is aimed towards both greatly increasing availability of this spoken language diet tracker to the large Android user base, as well as augmenting the current dataset in order to improve the efficacy of Coco Nutritionist as a nutrition and diet tracker. This Android version is still being developed, and it will be released to the Google Play store when completed.

Analyzing Family Dynamics and Student’s Duration in the Upward Bound Program
Veronica Gomez

TRIO: Upward Bound Programs have been shown to be helpful in increasing college enrollments of low-income students and students of color, and the longer students stay in the four-year program, the better their educational outcomes. Unfortunately, many students do not stay all four years in the programs, and this is especially true for Latinx/ Hispanic students, who have the shortest average duration compared to students with other racial and ethnic backgrounds. Why do Latinx students have a shorter duration in Upward Bound? This research focuses on analyzing one social factor that may be especially important: family involvement. Based on an email survey of 51 former LACC Upward Bound students, this project examined the relationship between family involvement and student duration in the program. Students were asked about their experiences in the program, some of the challenges they faced, family involvement and support, and family background and demographic information. I found that female students are more likely to play a typical traditional gender role in their household and take on various responsibilities, for example, helping to raise and take care of their siblings and other family members. These additional responsibilities may be causing female students to leave the program before completion compared to male students. Additionally, the data raised some possible differences in family involvement between Latinx and non-Latinx students that need further research to illuminate how ethnicity as well as gender influence students’ participation in Upward Bound Programs.

Analyzing US-China Relations through News Media
David Stottner

Due to the rising power of the People’s Republic of China on the international stage, understanding China-US relations, especially the Chinese perspective, is critical for the United States’ future cooperation with China. The transition from the Trump administration to the Biden administration will either signal a positive shift in Chinese views or the antagonizing of the Trump era will become ingrained. I conducted a content analysis on major Chinese news media sites to explore if any such shift in views took place with the shift in US administration. This research was conducted qualitatively through the software NVivo. Using the data collected from the content analysis, two major areas of US-China relations were analyzed: Security and Trade. Furthermore, the Chinese news media articles examined were divided into either being written during the Trump or Biden administration. Then, a comparison between the two administrations on these specific policies was done. Findings showed that Chinese media sees the new Biden administration more optimistically and there is a more positive outlook on trade relations, despite lingering problems. However, security relations during both administrations appear to be largely negative and full of conflict. The significance of this research is that it appears that the Biden administration does not represent a new beginning from the Chinese perspective, and many of the problems which emerged under the Trump administration remain.
Angelenos and the Perception of Encampments
Ryan Cochran

Homelessness and how to resolve it are current topics that warrant debate. This project aims to provide insight into how the public perceives encampments. This project will rely on data from the Thomas and Dorothy Leavey Center for the Study of Los Angeles' Spring 2021 Public Opinion Survey. This survey gathered data through 20-minute telephone sessions, online surveys, and face-to-face surveys with more than 2,000 adults living in LA County. I will be analyzing these data from the lens of race, age, and home ownership status. Results show that Black Angelenos are the most likely to agree with the statement that encampments may not be cleared out unless shelters are available while Latinas/os are the least likely to agree with this statement. Additionally, younger respondents and renters were more likely to believe that encampments should not be cleared out unless shelters are available. In conclusion, this project sheds new light on the underrepresented issue of encampments by closely examining the factors that influence an individual's perception of encampments, which can help politicians understand what policies should be developed regarding encampments.

Arts, Culture, and Economic Development: Angelenos' Views on Arts Facilities and Cultural Festivals
Alyson Chie

Cultural and creative businesses are the fourth largest business sector in Los Angeles County, generating $115 billion in revenue annually. Arts and culture-based industries provide direct benefits to regional economies by creating jobs, attracting investment, generating tax revenue, and encouraging tourism. My project seeks to understand specifically which Angelenos view arts and culture institutions as important for economic development in the region. The 2021 Public Opinion Survey conducted by the Thomas and Dorothy Leavey Center for the Study of Los Angeles surveyed 2,003 residents of Los Angeles County from January to February. Residents were asked questions about how important having access to arts facilities and cultural festivals were for economic development in the region. Responses were analyzed with demographic variables including respondents' race, political affiliation, and household income. The chi-squared test was used to test for statistical significance of results. Results show that Latina/o, Black, liberal, and those that self-reported a household income of less than $40k had the highest number of respondents that viewed access to arts facilities and cultural festivals as very important for economic development in the region. Asian respondents had the lowest number of respondents that viewed access to arts facilities and cultural festivals as very important for economic development. Angelenos' perspectives on the importance of arts and culture institutions for economic development indicate that there would be support for funding these areas in the future.

ARTsmart and Social Justice through Art Education
Brittany Lee

In the Fall of 2021, I participated in the ARTsmart program and I decided to focus on Social Justice and identity issues by integrating them into the ARTsmart lessons. ARTsmart is an art-focused mentorship program in affiliation with LMU and Westside Global Awareness K–8 Magnet School, an underserved local school in need of more arts programs.

Due to the Covid-19 pandemic, we worked virtually through zoom to teach our lessons to the 8th-grade classrooms. Oftentimes we were projected upon the whiteboard or on the student's individual laptops. I began our lessons by giving a brief history of an artist, what they did, and why they did it. Then I would present a lesson plan around their art style using a variety of craftmaking techniques and modalities. This gave the students context, an understanding of how and why, and the ability to put these new tools into action.

It was really engaging and meaningful for me to find more artists I thought the children could relate to in art history. The objective was to introduce racially diverse artists and artists with mental illness awareness in mind. I think we often underestimate how much children can understand and grasp in regards to social justice and identity issues. This engaged learning process, not only allowed the children to learn about new artists and be exposed to different methods of art but they were also able to create art and express themselves as unique individuals.
ASK-IT Autism Social Functioning Measure
Sara Eberle

The social performance of autistic adults is not adequately assessed using current ASD social competency measures. Current measures define social events too broadly and fail to differentiate between reasons for poor performance. The Application of Skills and Knowledge (ASK) model is focused on observable components that contribute to social interactions. Social performance is categorized by the use of social skills, social knowledge, and the social application of skills and knowledge. The ASK model is designed with the understanding that these three components are needed to successfully navigate social interactions. Empirical support is required to advance the ASK model as a theoretical framework to explain social performance in individuals with developmental disabilities. The present study aimed to develop a study protocol to provide empirical support for the ASK model. To accomplish this, measures of social performance were embedded in a survey. Partnered with an autistic self-advocate, the survey was piloted to determine the feasibility of rating each item. After items irrelevant to social performance were identified and removed, the model was refined. Results were synthesized in a report for senior investigators to review prior to the survey dissemination. As a next step, a committee of autism researchers and self-advocates will identify the ASK model components assessed in each item. The future study will serve to validate the ASK theoretical model and enable more refined measure development to assess social performance in individuals with developmental disabilities. Understanding social performance is necessary for assessment, treatment planning, and evaluation of treatment efficacy.

Assessing the conserved functions of Aim32, a thioredoxin-like ferredoxin mitochondrial protein
Kayleigh Bhatt, Roger Ratnam, Joshua Poura, Kamilah Roca-Datzer

Proteins in the thioredoxin superfamily are versatile, found with varying functions in almost every cellular compartment. Yet, thioredoxin-like ferredoxin proteins are among the most understudied categories of proteins. Our core hypothesis is that Aim32 is a unique thioredoxin-like ferredoxin [2Fe-2S] protein whose underlying molecular mechanism in redox regulation of proteins critical to mitochondrial functions is not known. Apd1, in S. cerevisiae, is another protein that belongs to the same class of [2Fe-2S] proteins as Aim32, bearing a conserved thioredoxin-like ferredoxin (TLF) domain. The TLF domain of the two proteins contain several conserved amino acid residues vital to the function of these proteins. Interestingly, Apd1 and Aim32 are localized to discrete cellular compartments, cytosol and mitochondria, respectively. We hypothesize that the function of Aim32 evolved with mitochondrial biogenesis and development of mitochondrial import pathways. To better understand its specific properties, we will test whether Apd1 can replace the functions of Aim32. Specifically, we will use a chimeric construct, Sod2-Apd1, which effectively targets Apd1 to the mitochondrion, in the absence of mitochondrial AIM32. The Sod2-Apd1 expressing strain will be tested for complementation of growth, mitochondrial functions related to complex assembly, and redox. Results will provide novel insights into conserved and specialized functions of Aim32.

Attachment style and responses to romantic relationship events
Layla Rainosek, Carly Coleman, Dana Elqaq

Individuals differ in how they interpret and respond to events in their romantic relationships. Some individuals engage in a healthy pattern of responses that allow them to experience resilience in the face of negative relationship events and to reap the benefits of positive relationship events. Other individuals engage in a more harmful pattern of responses. It is important to understand how personality variables might shape responses to relationship events. One variable that affects how individuals interpret social events is attachment style. One’s attachment style refers to one's typical pattern of behavior in close relationships. Those with an insecure attachment style tend to doubt their partner’s regard for them and respond to relationship events in a harmful way. In contrast, those with a secure attachment style feel confident in their partner’s regard for them and respond to relationship events in a healthier way. We conducted two studies to investigate the association between attachment style and responses to romantic partner behaviors. We assessed participants’ attachment styles and then had them imagine a variety of positive, negative, and neutral partner behaviors and report their cognitive, emotional and behavioral responses to these events. Findings revealed that those with an insecure attachment style were more likely to respond to partner behaviors with increased rumination and distress, and with
unhealthy emotional control strategies (such as saying something they would later regret). These findings reveal one important mechanism by which insecure attachment style may pose a risk to one's own wellbeing and relational wellbeing.

**Attachment style and responses to romantic relationship events**  
*Charlotte Spencer, Maxine Boyd, Yericka Rose*

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**Benefits of Dance for Geriatrics**  
*Eve Robinson*

This thesis analyzes the cognitive, physical, and social benefits of dance for geriatrics. By comparing studies involving both dance and geriatrics from around the world, as well as collecting original data through the teaching of older adults at Sunrise Senior Living in Playa Vista, CA, this work suggests significant positive effects when people age 65 and older participate in regular dance activity. In light of the rapidly growing geriatric population, the need for senior dance programs is reaching an all-time high. The U.S. Census Bureau estimates that people age 65 and older will outnumber children under 18 for the first time in history by 2034. As more long-term care facilities, community centers, and retirement homes begin to see the need for this type of activity, it is important to offer guidance. Effective class structure, length, and frequency is important when teaching dance to geriatrics; these elements are addressed within this project as a resource for individuals who wish to start teaching classes of their own. Dance programs, when properly implemented, can clearly be a vehicle for social, emotional, and physical healing within the geriatric community.

**Black Homelessness in Los Angeles**  
*Dezmin Hemmans*

Throughout American history Black people have experienced disproportionate amounts of racism, inequity, and lack of resources. At the start of the Reconstruction Era, the recently freed enslaved faced homelessness as they left plantations penniless with nowhere to go. Today, Black people still face disproportionate rates of homelessness, a few hundred years removed from emancipation. In Los Angeles specifically, Black people make up only nine percent of the total population yet represent forty percent of the total homeless population in LA. This is particularly relevant because Black people are more likely to experience certain risk factors such as economic hardship and mental illness due to systemic racism, and it is likely that these risks are elevated by experiencing homelessness. The present study investigates whether there has been a noticeable change in the amount of homeless people in Los Angeles from the perspective of commuters through survey techniques. The sample consists of responders aged 16-52 who currently live in the Los Angeles County. Data will be collected through Qualtrics and participants will be asked to report on the demographics (age, race) of homeless individuals in their community. This investigation is important because to effective solution to homelessness requires understanding intersections between race and class.
**Boomers vs. Snowflakes: Exploring the Generational Differences in Climate Change**

*Communication*

*Rachel King*

This study examines the differences between generations and their understanding of climate change through looking at rhetoric. Scientific research has shown that climate change presents an imminent threat to lives, infrastructure, and national security around the world. Literature also points to generations becoming increasingly polarized, with Millennials and Generation Z being the most liberal generations in nearly a century, while the Silent Generation, Baby Boomers, and Gen X adopt a more moderate to conservative political stance. However, scholars have shown that despite ideological differences, the way people communicate issues directly reflects their opinions about them. Thus, this study aims to find out whether or not generational differences translate into how generations understand the threats of climate change through looking at their rhetoric. I will conduct a survey of 500 respondents—100 in each generation—with open and close-ended questions on climate change. Then, I will conduct a content analysis on the survey results in order to measure the linguistic differences in respondents' answers. These findings should provide important insight into whose voices are being represented in current climate policy.

**Bright Shadows**

*Kieren Thigpen*

Every day we see a shadow. Every day we are attached to a shadow. Yet have you ever studied your shadow, have you acknowledged it. Or have you ever acknowledged that its existence is proof of your own. Emotions operate in the same way in the black community. Those emotions follow us around all day every day if we continue to exist. Yet the majority never address the emotions. The thing that creates us and makes us soulful and gives us our colorful personalities is something that is rarely confronted. Between dealing with the difficulties of the immediate and physical world as well as the stigma within the black male community of not being “a pussy” or “soft”, we never look within, and it drives us to the brink of break down daily. This war we fight within is being lost in so many minds. So, it is within this art show that I present to you the colorful world, bright and gloomy, of the black males mind.

Keywords: colorful, black, emotions, male

**Building Los Angeles: The Bitter Fight for a Harbor at San Pedro**

*Comer Wadzeck*

Today, the Port at San Pedro holds an ambiguous legacy in the minds of Los Angeles' residents. The port has facilitated the growth of the city from a ranching pueblo into a vast megacity, but economic benefits are offset by the health and ecological problems that the vast industrial and shipping complexes force on its residents. This research looks back into the late nineteenth and early twentieth centuries, when local and national interests converged on Los Angeles to fight what Los Angeles' boosters called “The Free Harbor Fight.” In attempting to dredge a deep-water port on the coast of Los Angeles and connect its inhabitants to lucrative Pacific trade, the Port would become a battle about land use, early progressive reform, the overreach of corporate interest, and the rise of municipal authority in the West. This research draws on first-hand accounts from the politicians, civil engineers, newsmen, and corporate lackeys who fought viciously to plant it either in San Pedro or Santa Monica. Often characterized by California historians as a battle between Titans Collis Huntington of the Southern Pacific Railroad and LA Times owner Harrison Gray Otis, the fight for the harbor was in fact fought for many reasons, altruistic and otherwise, by businessmen and community leaders from all walks of life. Although mostly forgotten by the people of Los Angeles today, the fight for the harbor was one of the bitterest fights in LA history, which deserves another look in this era of political and ecological crisis.
Capital-izing on Crime
Lailani Davis

Currently in the United States, members of marginalized communities are disproportionately incarcerated compared to those of privileged communities. This issue stems from a history of over-policing in disadvantaged communities, thus criminalizing them and providing false justification for the mass incarceration of such individuals.

Mass incarceration in the United States is a cycle that continues due to the business model nature of the for-profit prison system. Progress can be made toward reducing the imprisoned population by redirecting the money made by the criminal justice system towards decriminalization and rehabilitation efforts.

Characterization of EUP Black Holes
Juan Uribe

Black Holes are special objects as they are at the intersection of Quantum Mechanics and General Relativity. These theories have dominated the field for a century and have proved to be correct on many occasions. General Relativity in relation to gravity and massive objects, and quantum mechanics in relation to all other forces and subatomic scales. However, these theories are not compatible and as such we have to look for new ones. The study of black holes is a great place to start because black holes are the most compact objects in the universe but they present quantum properties. A central element of quantum mechanics is the uncertainty principle that dictates we cannot know with complete certainty position and momentum at the same time. However, this principle is not compatible with gravity and therefore it has to be readjusted for general relativity. The Extended Uncertainty Principle takes into account gravity and introduces a position-related uncertainty correction $L_*$. In a previous paper, a black hole metric associated with the Extended Uncertainty Principle was derived, by modifying the metric function of a Schwarzschild black hole. This metric introduces near horizon structures that should produce observable effects, such as love numbers, gravitational wave echoes, quasi-normal modes, and absorption coefficients. Some of these effects could be observed with current or near-term technology such as the Laser Interferometer Gravitational Wave Observatory (LIGO) and the Event Horizon Telescope (EHT). Other than calculating the expected value of the aforementioned observables, this article discusses the magnitude of $L_*$. 

Chemical defenses of Silvetia compressa across nutrient gradients
James Roe

Silvetia compressa is a productive brown algae that is located on the western coast of North America. It has been on the decline in recent years and replaced by smaller, less productive algae. Thus, it has thus been the object of restoration and conservation efforts. S. compressa is able to protect itself against herbivores as well as against UV radiation through its synthesis of phlorotannins. Phlorotannins are an understudied group of tannins that have had increased interest in the biochemical field due to their potential anti-diabetic, anti-inflammatory, and anti-HIV properties among others. This experiment studies how the amount of these phlorotannins vary across nutrient gradients. Extracts of algae grown in nutrient enriched conditions were initially made. The concentration of phlorotannins in those extracts was then quantified using a Prussian blue assay and compared to naturally occurring phlorotannin levels. The amount of phlorotannins in the different algae samples will provide insight into the conditions that regulate phlorotannin synthesis in S. compressa. This will aid in conservation efforts by showing how resilient S. compressa will be in nutrient enriched conditions.

Co-inoculation of Bacillus simplex and Sinorhizobium meliloti enhances nodulation of Melilotus alba
Karen Mai

Rhizobacteria in soil can develop mutualistic relationships with plants, to aid in the uptake of nutrients, alteration of plant hormone levels, and improving the plant’s defense against environmental stress. White sweet clover, Melilotus alba, is known to establish symbiotic relationships with rhizobacteria Sinorhizobium meliloti and Bacillus simplex. Sinorhizobium
S. meliloti belongs to an alpha subclass of Rhizobium and forms symbiotic interactions with leguminous plants, such as Medicago, Melilotus, and Trigonella. The bacteria can infect the roots of host plants and form nodules, which serve as a site for the fixation of atmospheric nitrogen. The plants, in return, supply rhizobia with carbohydrates and energy sources, as well as shelter in the nodules. Bacillus simplex has been found to augment plant biomass, mitigate fungal infections, and enhance nodule development in pea. This study examined the ability of B. simplex to induce nodulation in plants inoculated with various infection-deficient S. meliloti mutants. The pilA genes encode Type IV pili, which are responsible for infection and colonization. Mutations in these genes result in obstructed root infection. Mutations in the exoY genes, which encode for the biosynthesis of exopolysaccharides. M. alba roots were singly inoculated (with S. meliloti or B. simplex) or they were co-inoculated with S. meliloti and B. simplex. Plants that were co-inoculated had more root nodules and infection sites than those inoculated with an individual S. meliloti strain. Furthermore, co-inoculation of pilA-deficient S. meliloti and B. simplex produces nodules that are larger than those induced by wild-type S. meliloti and B. simplex.

**Code Red: An Exploration of Degrowth Economics**
Declan Tomlinson

Is economic growth all that it's made out to be? With imminent climate disaster, overconsumption, and rising inequality, some wonder if our current desire for growth is compatible with ensuring the survival of our planet. Degrowth Economics throws conventional economics on its head and ushers in a new 'utopian' vision of prosperity. But is degrowth the solution we've been looking for, and can it even be implemented? This documentary explores the growing discourse of degrowth economics, which critiques the current status quo of economic thought. The film includes interviews with scholars around the world who are currently studying different aspects of this diverse school of thought, synthesizing them into a digital research project. The film outlines the history of degrowth in-action and provides new examples of what degrowth looks like in practice by gathering field sources. It evaluates whether degrowth can solve systemic problems, namely climate change, and analyzes the feasibility of implementation on a global (or even national) scale.

**Cognition, Motor Ability, and Workload**
Hannah Agbaroji, Scarlett Manning

Workload is a useful construct in human factors and neuroergonomics research that describes “the perceived relationship between the amount of mental processing capability or resources and the amount required by the task” (Hart et al., 1988). A subjective measure of workload, the NASA - Task Load Index (NASA - TLX), was administered after neuropsychological tests of attention (the Trail Making Test) and motor ability (the Grooved Pegboard) were completed by student participants. With data collection still ongoing, preliminary results are presented. While Mental Demand relative to Physical Demand increased in the more difficult condition of the attention test, Physical Demand was greater relative to Mental Demand on the test of motor ability. Results support the utility of the NASA - TLX in reflecting specific workload states in the individual. Although the current study examined healthy younger adults, we propose that workload can be a useful construct and measure in neuropsychological assessment, providing an additional channel of information on patient status. For instance, if two patients perform within the normal range on a test (indicating no cognitive deficit), but one of them reports much greater mental demand or effort, is their cognitive status really equivalent?

**COLOR SCHEME**
Kaila Kim

Colorism is one of today's worldwide social issues that many experience every day. Although, there are still a number of people who aren't aware of this social issue and its underlying significance in everyday life. For example, the beauty industry tends to have a huge lack of representation for POC. In the work that I have curated, I highlight the parts of the beauty industry that partake in this and the parts that don't in order to compare the significance of both sides. With previous research infiltrated with the softwares of Adobe Photoshop and Illustrator, I have created a body of work to inform the world of the problems that colorism has created today in addition to the problem of colorism in the beauty industry. Within this work, the experiences of POC who have had to face colorism first hand are also included to show the problem in its present effect. Each curated work reveals the significance of these issues in its own way to reveal a new
knowledge of how the world and especially POC, are affected by this. Each work is created to bring great awareness to those unaware of this social issue and for the audience to feel the frustration that is felt by those who have to deal with this feeling every day. Overall, the pieces made are meant to work together to find solutions that one can use in order to help those who experience colorism to become and feel equal.

**community, identity: the importance of self-expression**

_Maeve Sullivan_

Community and identity are vital tools to the human experience, and how the two interact has always interested me as both tend to intersect with a wide array of social justice issues. One of the ways people gather in community is through personal expression. It may seem a bit oxymoronic but self expression bonds people; the way people choose to express their personality/style/morals can affect who they choose to surround themselves with. In the queer community, fashion, makeup, and how people generally physically present are huge parts of personal gender affirmation in addition to connecting those with similar stories. As a nonbinary person I’d like to share my own experience with expression as well as create a platform for others to have these discussions with one another, fostering community while sharing a creative experience. I have chosen to create wearable art pieces and a portrait series coinciding with important abstract aspects of queer culture as a way of bringing people with shared experiences together and represent values they hold close. I also want to acknowledge bias and privilege in my work as not everyone has equal opportunity to express themselves. I am aiming to create a physical communal space that this art can live in so that people can gather and practice fostering community in the space. My hope is to produce pieces that members of the queer community can wear or relate to and feel pride in their identity (without all the glittery rainbow capitalist pride flag t-shirts).

**Computational Investigation of Twisted Aromatic Hydrocarbons**

_Georgia Tully_

Research into the development of tunable organic semiconductors has notably increased to address the global shortage of semiconducting materials. Recently, dodecaphenyltetracene was synthesized which is one of a series of polycyclic aromatic hydrocarbons that exhibit a unique twisted configuration of its fused ring backbone. This preliminary characterization displayed similar electronic character to organic semiconductors used in field-effect transistors. Density functional theory (DFT) was employed to investigate dodecaphenyltetracene as well as similar molecules containing differing backbone lengths and electron withdrawing groups with interest in manipulating the twist to lower the LUMO level for increased electron mobility. Optimization and frequency time-independent calculations followed by time-dependent (TD-DFT) energy calculations were performed to analyze electronic trends as a result of increased backbone length and consequently altered end-to-end molecular twist. These calculations demonstrate a linear relationship with negative slope between the estimated HOMO-LUMO and optical gaps as a function of the number of fused rings along the polycyclic backbone. Contrasting these energy gaps with a separate series of identical molecules fixed into a planar configuration, the optimized twisted molecules display a pronounced red shift from steric hindrance due to phenyl substituents. Understanding how this twisting deformation impacts the electronic properties of polycyclic aromatic hydrocarbons could provide an additional parameter for predictive tuning of organic semiconductors.

**Constructing Indigeneity: The Mediatization of Indigeneity in Children’s and Journalism Media**

_Blake Marquez_

Western media has consistently misrepresented Indigenous identities, reinforcing existing Euro-normative constructs that simultaneously inform the creation of modern stereotypes that purport to explain what it means to be Indigenous. Reese (2008) suggests that childhood constructed meanings of Indigeneity via fictional entertainment media are primarily romanticized from a Westward expansion perspective, such as Disney’s Pocahontas. In adulthood, constructions of Indigeneity are often advanced by mainstream journalism where Indigenous communities are framed as tainted by violence and poverty, as seen in coverage of Pine Ridge (Ahtone, 2016). As the childhood construct of Indigeneity is chipped away by more negative and complicated framings of actual Indigenous people, non-Indigenous audiences can be frustrated by the lack of fidelity to childhood expectations, leading to what Goffman (1963) calls “spoiled identities”. To
examining political ideologies and their correlations to COVID-19 related opinions and beliefs, offers a clearer depiction of
Indigeneity across textual genres informs ongoing conflicts between Indigenous and settler identity groups, ultimately
obscuring accurate depictions of Indigeneity across media.

**Controlling the Vote: A Mixed Methods Analysis of Republican Voter Restriction**

*Collin Cate*

The ability to vote in US Presidential elections has been a divisive issue throughout the 20th and 21st century. The right to vote is a staple of being a citizen of a democratic society, and removing the right to vote can control the outcome of an election. Between 2018 and October 2021, state legislatures in primarily Republican states have implemented numerous laws restricting voting. In 2020-21, the number of voter restriction laws in a calendar year peaked. This study examines the connection between governor and state legislature's public endorsement of voter fraud allegations in the 2020 election, and the passage of voter restriction laws in their respective states. Through analysis of a data set of 22 Republican states with power trifectas, and comparing the behavior and characteristics of these states with other power divided or democratic-controlled states, I will create a unique data set centered around voter restriction passage and fraud endorsement. To supplement the data set, I will conduct a content analysis of public statements, reports, and remarks made by governors and state legislators, as well as the direct language of voter restriction legislation. I aim to determine whether there is a direct connection between the two phenomena that has a legitimate impact on United States citizens' ability to vote.

**Correlating Problem-Posing Patterns, Efficacy Beliefs, and Undergraduate Physics Student Success**

*Alexander Moore*

Physics Education Research (PER) aims to understand what allows experts in the field to succeed where novices may not and to implement teaching strategies in the classroom that allow novices to experience greater academic success. A large body of research exists on the correlation between problem-solving techniques and student success, but fewer have investigated "problem-posing" exercises, which challenge students to produce solvable problems based on their knowledge of class material. In this study, physics problem-posing exercises were administered to eight non-physics majors in a General Physics course, and participants' reflections on the activities were recorded through interviews. Responses from interviews and an additional follow-up survey were used to measure subjects' efficacy beliefs and metacognitive capabilities, as well as to evaluate problem-posing activities as a learning tool for undergraduate college students in physics courses.

**COVID-19: How Opinions and Beliefs Correlate to Political Ideology**

*Lucas Verderese*

This project focuses on the debate of COVID-19 and how individuals' beliefs and opinions of this topic are correlated to political ideologies. This study serves to gather an analysis of the political ideological divide on COVID-19 in this country and how that has correlated to people's opinions regarding their trust in the CDC, COVID-19 vaccine producers, the vaccine itself, and the idea of a vaccine mandate. Data utilized in this research are from the Center of the Study of Los Angeles' 2021 Los Angeles Public Opinion Survey, which comprises of responses from 2,003 adult residents of Los Angeles County. This research analyzes opinions of a vaccine mandate, trust in the CDC, trust in the COVID-19 vaccine producers, and willingness to get the COVID-19 vaccine by political ideologies, using the chi-squared test to indicate significance at p<0.05. Results indicate that all three political ideologies share high levels of trust and willingness. Conservatives show a more balanced range of results, followed by moderates. All three groups showed high levels of trust in the CDC and COVID-19 vaccine producers, and a willingness to get vaccinated. Otherwise, the liberals were the only group demonstrating a preference for the vaccine mandate which was the sole conflicting topic. In conclusion, this project, by examining political ideologies and their correlations to COVID-19 related opinions and beliefs, offers a clearer depiction of
shared opinions among conservatives, moderates, and liberals while also highlighting specific areas of distrust and anomaly.

Cycles of Violence in Armed Conflict
Miles Melendres

Many armed conflicts appear to be everlasting, but why? This paper asserts that all conflicts, whether global or domestic are cycles of violence motivated by perpetual fear and hatred. Understanding cycles of violence is the first step to reconciliation; breaking the cycle requires an understanding of pain and historical grievances. These emotions have similar motivations, such as group differentiation and historical grievances, however security dilemmas and rational choice moreso cause fear rather than hatred. Emotions are simply mechanisms for actors to continue or cause conflict. For example when group #1 feels their security is threatened by group #2, fear is a mechanism that drives group #1 to achieve a perceived ‘safety’. This fear and hatred is perpetuated on both sides and causes retributive violence. I present three case studies: German Revanchism from the Franco-Prussian war to World War II, The Rwandan Genocide and the Israeli Palestinian conflict, which were all motivated by hatred and fear to varying degrees. The Rwandan Genocide seemed to be largely motivated by fears of the other group, whereas German Revanchism largely was a result of hatred and frustration. The Israeli-Palestinian conflict have very noticable elements of both emotions. Understanding that armed conflicts are cycles of violence is important. Having knowledge of the emotional factors that perpetuate cycles of violence makes it easier to facilitate peace and reconciliation.

Dark Comedy in Queer Television
Harrison Hamm

In my WGST senior capstone project, I am writing a research paper that examines intersections of queerness, aesthetics, and neoliberalism as observed in contemporary dark comedy television series. My research project provokes two central questions: (1) How are queer humor and aesthetics affected by the neoliberal entertainment economy today? and (2) How does camp relate to current TV trends in queer dark comedy and aesthetics? As LGBT stories on TV increase under cultural pressures for “positive representation,” the ways that queerness surfaces on-screen continue to multiply and take varying shapes. From the sheer quantity of new queer characters and increasing employment for queer TV creators to even how streaming services revolutionize access to TV, queer television has entered a zeitgeist moment. However, the entertainment mainstream actually presents a major moment of conflict for queerness and queer aesthetics. Given queer theory’s fundamental opposition to hegemonic ideology, queerness’ mainstream presence on-screen presents an ironic position of commodification. As contemporary TV series warp queer identity into commodity via tokenization and heterosexual-assumed audiences, queer aesthetics become denied the subtext and edge that makes such aesthetics queer or campy in the first place. For these reasons, I argue that current queer dark comedy television represents an exciting, even essential, opportunity to ask questions about queerness’ relationship to neoliberalism. By analyzing dark comedy in queer television series, I ultimately seek paths against and outside of neoliberalism’s cultural, economic, and imaginative chokehold on queer life.

Decreasing Human Trafficking: An Analysis of Youth With the Foster Care System
Shanequewa Love

Human trafficking continues to be an emerging problem within the foster care system. This research paper focuses on the increase of human trafficking rates of youth in the foster care system. Youth in the foster care system face many systemic barriers, which puts foster youth at greater risk at exposure to human trafficking. According to research, due to the lack of support, vulnerability, exposure to sexual trauma, and recruitment within residential facilities, youth in the foster care system become primary victims of human trafficking. I argue that staff training is needed to help decrease human trafficking rates within residential facilities. The hypothesis is not supported. Rather, findings indicate that in order for human trafficking rates to decrease within the foster care system, counseling was significantly needed in residential facilities.
Defining Teacher Authority and the Protection of the Educational Process
Riley McCoy

In 2013 the Los Angeles Unified Board of Education banned willful defiance suspensions for K-8 students and reduced its use in high schools. While willful defiance evolved from a larger set of zero tolerance policies, it has been a common target of punitive policy reforms across multiple school districts. Despite initial positive outcomes like a reduction in overall suspensions and racial disparity, LA Unified still maintains a racial disparity in its expulsion rates and use of willful defiance. Willful defiance in its definition maintains that a willfully defiant student violates an otherwise valid authority of a school administrator. However, in a racialized place like schools, it remains to be seen whether a valid authority participates in the racial formation of students as delinquents. This thesis will conduct a genealogical analysis of the practice of willful defiance to understand the changing meaning of “valid” authority in school disciplinary structures. Furthermore, this thesis will identify the role of a “valid” authority in creating two racialized archetypes of students: the willfully defiant and the unintentionally obedient.

DESIGNING FASHION FOR LONGEVITY AND ZERO WASTE
John Madden

The current clothing production system is linear and wastes materials at all stages of the value chain. In my research, I studied the wasteful and impractical flaws of the fashion industry’s linear production process and designed a circular system of production that calls for not only sustainable manufacturing methods, but also consumption methods. I found that a circular clothing production system must start with the use of zero waste production patterns and recycled fabric to construct garments. At the end of the process, the recovery and recycling of items after consumer considers the product to be done becomes a crucial part to remain sustainable and makes this a closed loop system. My research also led me to find that the most efficient and sustainable clothing must be made to order in order to prevent surplus of inventory and waste. Finally, using zero waste pattern designs, I physically created a full outfit using my circular production process method and designed them to be the only clothes you would ever need. Overall, I have created the steps required for a future without “fast fashion” and textile waste that makes recovery of the item an essential part of the production process after the consumer looks to dispose of it. My research shows that a key approach to sustainable clothing production starts with zero waste sewing patterns and develops a system where all products are recycled forever and collected back after they are done with use.

Developing a Software Synthesizer
Hunter Krasa

While synthesizers have been an essential tool in music production for decades, hardware synthesizers are often too costly for novice producers to afford and utilize. This application seeks to replicate the functionality of an authentic synthesizer digitally through use of sound synthesis via multiple wave types, volume controls, and additional parameters that alter the way the waves behave. By use of the JUCE framework, instruction within and outside of JUCE, and available documentation, the overall software synthesizer was created. Development was broken into multiple distinct pieces, including the creation of the oscillators, the synthesizer, and later the user interface for the application. The oscillators generated sound waves that were able to be impacted by different user inputs, such as volume, velocity of stroke, and other popular synthesizer parameters like Attack, Decay, Sustain, and Release (ADSR). The synthesizer allowed the user to control the oscillators through the pressing of notes on a keyboard. The application interface could then be used as a direct route for users to view and change the parameters that the oscillators accept through numerous sliders. The end result is a digital application that mirrors popular functions in authentic synthesizers and can be used in all modern music creation software without the need of a keyboard or hardware synthesizer.
DEVELOPING HUMAN ISLET AMYLOID POLYPEPTIDE (HIAPP) MODELS USING SWISS PDB

Lianlen Joy Distor

Diabetes is a leading cause of death in the United States, and it is believed that the formation of toxic human Islet Amyloid Polypeptide (hIAPP) aggregates is the leading cause of pancreatic tissue loss in patients with Type 2 diabetes. Summer 2020 was spent finding IAPP peptides that could inhibit Type 2 diabetes, and a question that popped up at the end of that endeavor was: if hIAPP is combined with recently discovered IAPP peptides, how will the stacks of IAPP self-assemble on a molecular level? Thus, the Summer 2021 project aimed to visualize hIAPP stacking through Swiss PDB and show how the peptides found through previous projects will inhibit hIAPP. The developed molecular models will hopefully be used for further potential hIAPP publications.

KEYWORDS: Amylin, Islet Amyloid Polypeptide, amyloid inhibition, diabetes, hIAPP stacking

Development of Low-Cost Water Quality Sensors

Leo Tanaka

A preliminary design proposal of a deployable monitoring system to determine the quality of water at coastal locations was implemented. Goals of this system are to maintain a low cost, provide precise and accurate data, and to require minimal maintenance over long periods of time. It was determined that the system would contain sensors that could measure pH, electrical conductivity, temperature, and dissolved oxygen in bodies of water. As the on-site data is continuously being collected, it would be stored to a local back-up drive, while also being transmitted through radio communications to an off-site user for further analysis. This reduces any additional labor for researchers to physically obtain the data stored on each system. Research was conducted to ensure specific subsystems had an appropriate purpose for its application. Subsystems such as, the sensors, an open-source microcontroller, communications, data storage, power, software, and a vehicle, were considered and required to obtain a successful design. As the understanding of each subsystem progressed, a document was produced listing possible design concepts, potential constraints, and solutions for each subsystem. Future work will involve development of prototypes for testing in the laboratory and in Ballona Creek, which would involve assessing power needs for use in extended deployment, options for recharging using on-board solar panels, data communication and storage, and software algorithms.

Developmental abnormalities in Melilotus alba induced by pilA mutant Sinorhizobium meliloti

Alexis Chun

The symbiotic alpha (α) Rhizobium-legume interaction requires that both nodule development in the host roots and infection occur. Successful infection involves many factors, including the pili surface protein, encoded by pilA genes. The role of these genes in the infection process is uncertain, so the effect of inoculating Melilotus alba plants with bacteria with pilA deficient genes was investigated.

Three sets of M. alba were grown and inoculated with wild type and pilA deficient S. meliloti to harvest at different stages of development. For each set, half of the harvested roots were stored for RNA analysis, while the rest were fixed in formaldehyde and stained for histological studies, which includes looking for phenolic compounds and other abnormalities. The fixed roots were observed under a light microscope.

Plants inoculated with pilA deficient bacteria showed developmental abnormalities in root nodule formation, including patchy infection patterns, irregularly shaped nodules, and clusters of smaller, partially infected nodules growing on larger nodules that were not or were barely infected. Nodules also showed potential signs of phenolic compounds. However, based on observations of plant growth as a whole, the plants infected with pilA deficient bacteria looked comparable, if not healthier than the wild type control plants.
These observations indicate that the nodule abnormalities caused by the pilA deficient mutants might be beneficial, as the clusters of smaller nodules could ultimately allow for more bacteria to fix nitrogen for the plant. Further studies are also required to determine whether phenolic compounds were present in the nodules.

Diet Analysis of Scat from Coyote Pack in Culver City

Anna Monterastelli

Culver City’s residential and recreational areas have experienced more frequent encounters with native wildlife in recent years. The increase in these interactions with the city’s population and coyotes (Canis latrans) in particular have sparked interest in understanding why these canids have habituated to urban environment. A possible hypothesis for this occurring could be that the coyotes’ diet has evolved to prey upon domesticated cats, which are also highly prevalent in urban areas. A dry fecal analysis has been developed to quantify how often the coyotes have incorporated cats into their diet. To track the consistency of their diets, we collected scat samples from one pack for a year period, dried them, and dissected them. We then observed animal hairs discovered in those samples via light microscopy at 100X magnification. We identified animal hair based on its structural characteristics such as the medulla, cortex, pigment granules, and the cuticle. Understanding seasonal patterns and contents in coyote diets will better inform City officials to create coyote management programs and provide residents with information that will help them better protect their pet.

Differentiation of Southern California seagrass species, Zostera marina and Zostera pacifica

Amberly Hershewe

Eelgrass is a foundational species that provides habitat and grazing grounds for many marine organisms. Eelgrass beds are particularly vulnerable to disturbances such as coastal development and eutrophication, which have resulted in a severe decline of eelgrass and its associated ecosystem services along the Southern California coast. Two eelgrass species, Zostera marina and the putative species Zostera pacifica, are native to the Southern California coast and are the focus of seagrass restoration efforts, including along the Southern California Bight and California Channel Islands. Complicating restoration efforts is the situation that Z. pacifica is frequently misidentified as Z. marina or other Zostera species due to a lack of genotypic and morphological evidence differentiating the species. This ambiguity between species is of concern as some research has suggested each species has different environmental requirements, and restorations may be more successful if donor seagrass material is transplanted to locations that are typical for each separate seagrass species. Furthermore, by successfully differentiating between these two cryptic species, transplantation methods can be optimized to avoid instances of unnecessary hybridization and result in a successful restoration of both species populations. Here we use three genetic markers, matK, ITS, and rbcl, as well as morphological features to differentiate Z. marina and Z. pacifica sampled from multiple candidate Southern California donor sites. Results of this study will be shared with The Bay Foundation to aid them in their restoration efforts, including the Los Angeles Living Shoreline project near Loyola Marymount University.

Discovering and Analyzing Harmful Algal Bloom Trends in Los Angeles Waters

Alexa Lutz, Francesca Conte

Harmful algae blooms, or HABs, are the overabundant accumulation of one or more of toxic phytoplankton species. The plankton in these HABs can generate various types of toxins, of which can lead to sickness, paralysis, or even death in humans. This is why properly monitoring HABs is so important. Since recreational ocean activities and local fishing is such a major part of Los Angeles life, it would seem likely that the HAB concentrations along the city’s shorelines would be closely and continuously monitored. Unfortunately, that is not always the case, and monitoring locations are few and far between. Our research team has been working to fill this knowledge gap and take the first steps toward understanding HAB patterns in local LA waters. We have collected water samples from 20 location points in LA during 2020-2021, including ocean samples, marina samples, and creek samples. Using an imagery data software, we’ve been able to analyze the samples and create a small-scale, time-series trend of HABs patterns in LA waters.
Distribution and Consumption of the Digital Other: Portrayal of Spanish-speaking Cultures in Media
Katherine Hernandez Comasil

Netflix’s globalization allows viewers the opportunity to participate in cross-cultural consumption of worldwide digital entertainment media. To explore the implications of this cross-cultural media encounter, this project focuses on the distribution and consumption of Netflix’s Spanish television content, the platform’s most watched non-English programming worldwide between 2017-2021 (Moore 2021). Using critical approaches to media studies and digital media in particular (Lobato 2019; Lotz and Lobato 2020), this project consists of two main parts: 1) Analysis of shows by genre produced by Spain and Mexico for distribution on Netflix, as these countries provide the most Spanish content on the platform. 2) A case study of television programming from Spain and Mexico focused on two of the most popularly ranked shows on Netflix: Money Heist (2017-present) and Who Killed Sara? (2021). By applying critical theorist bell hooks’ (1992/2011) theory of cross-cultural media consumption outlined in her essay “Eating the Other: Desire and Resistance” to Spanish content on Netflix, this project tests claim made by TV reviewers and media scholars that Netflix’s international programming provides an opportunity to challenge American imperial dominance of global media. Preliminary conclusions indicate that cultural imperialism is evident if we don’t just consider industry level data (i.e., percentage of program offerings that are American or non-American), but how audiences engage with a particular show.

Does acting training matter in relations between emotion regulation, granularity, and mental health?
Michelle Chernikova

While some people label their emotional experiences using precise terms (anxious, sad, frustrated), others characterize their emotions more globally (upset, bad). The degree to which individuals can differentiate between discrete negative emotional states is known as negative emotion differentiation (NED). Higher NED is associated with increased use of adaptive emotion regulation strategies and decreased levels of mental health symptomatology. Actors, trained to heighten their emotional awareness and regulate emotions across situations, have been shown to differ from other individuals in temperament, emotion perception, emotion regulation, and emotional beliefs. Thus, the current study utilized a correlational design to examine NED, emotion dysregulation, and symptoms of depression, anxiety, and stress in a sample of 360 undergraduates with varying levels of acting experience. We expected that acting experience would moderate the relationship between NED and mental health, as well as the relationship between dysregulation and mental health. Due to an abundance of literature demonstrating gender differences in emotional processes, we hypothesized that male students with acting experience would be more emotionally distinct compared to their non-acting counterparts. Results indicate that acting experience has small, significant associations with emotion dysregulation (r = .162, p = .002) and mental health (r = .226, p < .001). Contrary to expectations, NED was not correlated with either dysregulation (r = .036, p = .570) or mental health (r = -.006, p = .918). Moderation analyses will be run and implications for factors that may contribute to the mental health and well-being of college students will be discussed.

Does Size Really Matter? A Taphonomic Comparison of Small and Large Mammals
Patrizia Marie Tandinco, Belen Carrasco-Cazares

The Rancho La Brea (RLB) Tar Pits provides one of the largest and most unique collections of fossils from the late Pleistocene, including a wealth of large mammal fossils that have been a spotlight of research for over a century. However, smaller mammal species were often overlooked. One area of investigation previously explored exclusively on larger species is taphonomy, which encompasses the processes of bone fossilization from death to excavation. These measurements include three categories at RLB: abrasion, weathering, and pit wear. Abrasion shows the erosion of bone surface due to the physical impact of sediment or water movement, weathering showcases how climate and soil conditions have a destructive effect on bone preservation, and pit wear demonstrates bone to bone interaction within a pit. In this study, the taphonomy of a variety of mid-sized or mesocarnivore (small to medium sized mammalian carnivores) specimens are quantified for the first time and compared to the taphonomy of larger specimens already collected from Pit...
91 in RLB. Because surface area is greater on larger specimens, we expect that the incidents of taphonomy will be greater for the larger specimens in comparison to the mesocarnivores, though size is continuous, and the gradual effect of size on taphonomy may be possible to demonstrate. We find that mesocarnivore specimens generally score lower in measures of taphonomy. More data and as well as size comparisons made more accurate through scaling may help us better understand the effects of size on the processes of fossilization at RLB.

**Effect of hydrogen peroxide priming on the germination of native seeds under drought stress**

*Caroline Ehren*

Native coastal vegetation in southern California has been negatively affected and degraded due to urban development, and various organizations are working on restoring native plant species. This research focused on the major challenge regional drought presents to restoration, making it more difficult for the reestablishment and optimal growth of native vegetation. Hydrogen peroxide is an important signaling molecule in plants which is involved in directing water uptake events associated with seed germination. Hydrogen peroxide priming has been identified as a viable method in agriculture to increase the drought tolerance and germination of crop species such as rice, wheat, and many others. We aimed to determine whether the drought tolerance and the germination of two coastal vegetation species, Lupinus bicolor and Eschscholzia californica could be improved by hydrogen peroxide priming. We performed germination assays which measured seedling responses to PEG-6000 induced drought stress after pretreatments of hydrogen peroxide at 50 and 100 mM concentrations. Statistical analysis did not confirm that hydrogen peroxide increased seed germination, but did show significant difference between the 50 and 100 mM concentrations, indicating the necessity for further investigation as well as field experimentation.

**Effect of Overaging on the Static Mechanical Properties of Aluminum Alloy AlSi10Mg Fabricated by Las**

*Anthony Orozco, Hannah Agbayani, Arnav Akarte, Matthew Bentsen, Amer Almehmadi, Stephen Sung*

The mechanical properties of AlSi10Mg, as with all aluminum alloys, vary with exposure to elevated temperatures. The mechanical properties of AlSi10Mg has not been fully characterized after long term exposure at elevated temperatures, particularly in the range near precipitation hardening aging temperatures. This study will measure the changes in mechanical properties of AlSi10Mg as the time of exposure increases at moderate elevated temperatures around the aging temperatures.

**Temperatures:**
- 130°C
- 140°C
- 150°C
- 160°C
- 170°C
- 180°C
- 190°C

**Time**
- As-Printed
- 2 hours
- 6 hours
- 10 hours
- 20 hours
- 60 hours
- 100 hours
- 200 hours
- 600 hours
- 1000 hours
The times and temperatures were chosen to reflect the impact of potential service temperatures on properties. The properties for many aluminum alloys are known to degrade based upon the exposure temperature. This is shown in the standard stress relief tempers for AlSi10Mg. They decrease the mechanical properties from the as-fabricated condition as shown in ASTM F 3318. A knowledge of the effect of long term elevated temperature exposure allows designers to make accurate assessments of the robustness of their designs and the expected degradation over service life. To my knowledge, no such study has been performed on this alloy system at these temperatures for extremely long times. The chosen durations can be extended since we did not observe an asymptote in properties at higher temperatures.

Effect of Urbanization on Coyote Abundance in Culver City
Colby Mallett

Due to the increased rates of urbanization in once biodiverse areas, it is now critical to study the effects of urbanization on species abundance and biodiversity. This study investigates the impact of urbanization in the Culver City area on coyote abundance. Four sites across Culver City were studied and split into two groups, inner city, known as the urban area, and edge of city, known as the rural area. Coyote abundance was determined through the use of systematic camera trapping at each site. A final estimate that accounts for the imperfect detection in camera trapping was conducted using the Moeller Time to Event Model. Once determined, abundance between both settings were compared for several months in 2020 and 2021. In this analysis we found a decrease in coyote abundance in the urban areas as opposed to the more rural locations on the edge of town. The further understanding of urbanization’s negative effect on coyote populations will help us to not only protect coyotes in present day, but also allow for safer future urban expansion for the coyote population and other similar animals.

Effects of Storytelling on Emotional Distress in Hospitalized Children
Simona Vishnevsky, Salonee Dangoria, Serena Short

Oftentimes when an adolescent is hospitalized, the hospital staff will provide extra resources in an attempt to make the hospital homier, more inviting, and less scary for the young patients. When trying to improve hospital environments, children will often be told fictional stories by the hospital staff. These stories are meant to improve the child's mood and lower emotional distress. It is because of this practice that the goal of this meta-analysis is to look into the relationship between how an increase in story-telling will decrease levels of anxiety, depression, and sleep disturbance in hospitalized children. This meta-analysis looks at five published articles that discuss the effectiveness of storytelling in hospitalized children from the ages of 4 months old and 16 years old. Storytelling interventions are designed for children to read or write about and discuss their emotions. Studies that fit the inclusion criteria were coded and the measures for emotional distress levels without receiving a storytelling intervention and with/after receiving the storytelling intervention were found. Across studies, there were 7 tools used to measure emotional distress and 16 effect sizes reported or calculated given the information from the studies (N = 402). Our overall effect size has a d-value of -1.158, which represents a large effect size. An overall effect size of d= -1.158 shows storytelling decreases levels of emotional distress in hospitalized children, ages 4 months to 16 years old.

Effects of Temperature and Salinity on Superoxide Dismutase Activity in Mytilus galloprovincialis
Osiris Guinea Zepeda

An imbalance between free radicals and antioxidants causes oxidative stress which can damage cell membranes, proteins, and DNA. Increasing environmental temperatures have been positively correlated with an increase in oxidative stress in marine mussels. However, we do not know the potential effect of multiple stressors on the M. galloprovincialis antioxidant response system. The purpose of our study was to quantify the enzymatic SOD activity of M. galloprovincialis when exposed to multiple stressors. We measured the total SOD activity of mussels exposed combinations of varying salinity (20, 25, and 34 ppt) and temperature (17, 20, and 25°C) conditions. Following multiple stressor exposure, the mussels were dissected, the gill tissue isolated and frozen, and the tissue was homogenized. We quantified SOD activity using a colorimetric assay following the manufacturer’s instructions. We found that there was an increase of SOD activity in
mussels exposed to the mild temperature stress (20°C) combined with 34 ppt or 20 ppt. Mussels under 20°C and 28 ppt showed similar SOD activities as the mussels under all salinity exposures at 17°C or 25°C. The lack of change in SOD activity at higher temperature exposures may suggest that M. galloprovincialis uses other methods to combat multiple stressors. Therefore, other cellular stress response proteins, antioxidants, or feedback responses may play a more vital function with mussels that face acute temperature and salinity exposures.

**El papel de la Organización de Mujeres en la lucha contra el feminicidio: El Salvador y Guatemala**
*Ann Huff*

Femicide, the deliberate killing of a girl or woman because of her gender, is a prevalent form of violence in El Salvador and Guatemala. Both countries rank in the top five for the highest femicide rates in the world. Existing literature attributes the exceedingly high rates of femicide to deeply rooted patriarchal systems, the countries’ prolonged armed conflicts, and robust gang activity. To understand efforts to mitigate femicide, I turn to the roles of women's organizations. More specifically, I pose the questions: How do women's organizations influence laws about femicide? What role do women's organizations have in raising awareness around femicide? Understanding the role of women's groups in battling femicide in these two countries offers insight that may be useful to policy makers and activists in other parts of the world. There is little scholarly work focused on the role of women's organizations in combatting femicide. This study analyzes the role of women's organizations in crafting legislation, pressuring governments to enforce laws, raising awareness, and mobilizing public opinion. The study will ultimately provide guidance on how women's organizations can move forward with positive change. Furthermore, it will help identify and explain the conditions contributing to the persistence of violence against women despite organized efforts to mitigate it.

**Elgin's Crime in Athens: The Case of The Parthenon Marbles**
*Matthias Tran*

One of the most disputed artifacts of the modern era is the Parthenon Marbles, a collection of marble statues that once decorated the exterior of the Parthenon in Greece. The Marbles were removed by Thomas Bruce (Lord Elgin), the British ambassador to the Ottoman Empire, which controlled Greece in the 1800s. Elgin then sold the Marbles to the British Museum, where it currently serves as the star piece in the museum's Greek Collection. Because of the efforts of the British Museum, the Marbles have gained increased cultural capital and perceived value in the international economy. However, calls from the Greek government for the return of the Marbles have brought intense pressure and public scrutiny to the British Museum, which has refused to return the object on multiple occasions. While the British Museum is steadfastly opposed to the return of this cultural artifact, I argue that the Parthenon Marbles should be repatriated based on the following reasons: the countless number of legal inconsistencies surrounding the original paperwork that supposedly allowed for their removal from Greece, the severe mistreatment of the Marbles by the British Museum, and the vital preservation of Greek cultural heritage. I also explore modern solutions for the repatriation of the Marbles, some of which include 3-D Printing and Virtual Reality. The repatriation case of the Parthenon Marbles is part of a much wider debate on the work that modern encyclopedic museums need to do to depart from displaying objects that were collected or stolen during the colonial era.

**Emotions, Environmental Engagement, & Environmental Education**
*Noemi Flores*

My study will investigate worry, hope, and the degrees to which those emotions empower students to engage with environmental issues. Currently, there are mixed findings on the relationship between worry and environmental engagement. The American Psychological Association (2017) defined eco-anxiety as extreme worry and “a chronic fear of environmental doom” which is detrimental to environmental engagement. Other studies found that when worry was measured as less extreme, worry was a positive predictor of engagement in the presence of hope (Ojala, 2008). Hope is an emotion that can reduce eco-anxiety and promote environmental engagement (Nairn, 2019). The research on worry, hope, and environmental engagement has been mixed mostly in part because researchers have operationalized worry in different ways. Furthermore, previous research demonstrates that climate educators can increase hope and engagement by increasing students’ awareness of climate change solutions (Ojala, 2011).
In this study, participants (LMU undergraduates) will complete a survey measuring the variables: climate worry, climate anxiety, hope, environmental engagement, and perception of climate change solutions in the classroom. I have not collected data but expect to have data collected and analyzed by early March. I will first examine correlations between hope, climate anxiety, climate worry, and student environmental engagement. I will also examine correlations between the student's perception of climate change solutions in the classroom, their reported hope, and their environmental engagement. I hypothesize that environmental engagement will be negatively correlated with climate anxiety, positively correlated with climate worry and hope, and positively correlated with students' awareness of mitigation strategies.

**Environmental Communication Methods: Exploring community engagement with nature based solutions**  
*Samantha Wilson*

In an effort to establish a more climate optimistic narrative, this paper explores how to best communicate and engage our local southern California community in local carbon capture and restoration efforts. Amplifying and highlighting BIPOC and women's voices in the environmental field is essential for bridging the gap between climate research and digestible, tangible, and inspiring communication. I have compiled various communication and social theories, arguments, historical and current environmental events, and interviews to hopefully understand how progress and impact are best executed within our community. I also plan to share this qualitative research through a website dedicated to the incredible women interviewed on their projects. Finding the best methods that inspire a sense of hope and inclusion hopefully encourages our communities to engage actively, donate, volunteer, and learn about the local projects dedicated to building a more resistant world. I am writing through an environmental justice lens, emphasizing women, BIPOC, and activism in the field.

**Environmental Heat Stress Exposure Increases Food Consumption Rate of Mytilus galloprovincialis**  
*Keeby Tie*

Population growth exerts pressure on food networks, threatening food security. One potential solution to this problem is mariculture of mussels, however, the success of this source is dependent on the effects of climate change on the oceans from which they are farmed. Mussels are filter feeding organisms which use cilia to obtain their food. Measurement of filter feeding (clearance) rates is a proven methodology to determine environmental stressor effects in the organism. The purpose of this study was to quantify changes in clearance rate of the heat-tolerant mussel Mytilus galloprovincialis under heat stress. We hypothesized that clearance rate would increase with increasing temperature up to the optimal condition and then decrease when the optimal temperature is exceeded. Mussels were obtained from Marina Del Rey, CA and acclimated to control conditions before experimentation. Clearance rate measurements were conducted in 1 L containers with known amounts of food and the amount of food consumed was determined over a 30 min period following exposure to varying seawater temperatures (17, 20, 23, 25, 27, 30°C). Our study found a significant effect of temperature on clearance rate where clearance rate increased with increasing temperature. Our results suggest that elevated food consumption rate in mussels may be a result of increased energy requirements to deal with environmental heat stress. As climate change progresses, increasing environmental stress may limit the success of the mussel farming industry, reducing its effectiveness as a potential solution to food security.

**Environmental Justice in General Chemistry**  
*Danielle Hjerpe*

Students in STEM majors often struggle to understand the connection between scientific principles and social justice issues. This study seeks to address this disconnect by exposing first-year students to chemistry principles in the context of environmental justice. General Chemistry students were surveyed at the beginning and end of their course using a combination of Likert-scale and open-ended questions. The course curriculum was modified to place technical chemistry problems in the context of environmental justice crises, and one group of students was additionally tasked with watching
videos containing testimonials from victims of these crises. This ensured exposure of all participants to the relationship between chemistry and environmental justice, while simultaneously measuring the impact of first-hand testimony from individuals harmed by irresponsible science on student perspectives. Results from Fall 2020 indicate statistically significant improvements in students’ recognition of the concept of environmental justice and their understanding of the role that chemistry can play in addressing social justice issues. Students in the exposure group developed an increased understanding of chemistry’s relevance to helping marginalized people in society, as reflected both in their responses to Likert-scale questions and the specificity of their word choice in open-ended responses. Results from Fall 2021 indicate a relationship between academic performance and improvements in understanding of the aforementioned topics. In light of the deficit exhibited by students in STEM majors in their understanding of the relationship between scientific principles and justice-related issues, this study highlights the benefits of placing basic scientific principles in the context of environmental justice.

**Evaluating the suitability of the pSGDLuc reporter plasmid to measure HTLV-1 frameshift efficiency**

*Cole Melton*

Human T-cell leukemia virus type 1 (HTLV-1) is a human carcinogenic retrovirus that relies on an unusual translational event, called a -1 programmed ribosomal frameshift (-1 PRF), for the synthesis of a specific set of viral proteins. The frameshift efficiency describes how often this event occurs when viral RNA is translated. This is a single number specific to the virus that does not change. HTLV-1 pro-pol frameshift efficiency for the wild-type frameshift site and a series of mutants was measured using in vitro experiments. However, the in vitro environment is distinct from a cell. Surprisingly, when the in vitro experiments were repeated in cells (ex vivo), the frameshift efficiencies were roughly 10-fold lower when compared to the published values. We hypothesized that this difference in frameshift efficiencies arose from an unexpected RNA processing event occurring in the cells. To test this hypothesis, RNA was synthesized using linearized pSGDluc plasmids and the corresponding in vitro frameshift efficiencies were measured. For all frameshift sites examined, the newly measured in vitro frameshift efficiencies generally agree with our previous in vitro results. This suggests that the discrepancy between the pSGDLuc ex vivo and in vitro measurements may be biologically relevant. Future experiments will involve transfecting the pSGDluc RNAs into cells and measuring the corresponding frameshift efficiencies. Ultimately, this research will provide insight into whether trans-acting factors regulate HTLV-1 pro-pol -1 PRF.

**Examining the Temperature-dependence of HTLV-1 pro-pol Programmed -1 Ribosomal Frameshifting**

*Audrey Covington*

Many viruses use programmed -1 ribosomal frameshift (-1 PRF) sites to permit the synthesis of viral proteins in an alternative reading frame. For example, the human T-cell leukemia virus type 1 (HTLV-1) pro-pol frameshift site allows ribosomes to translate the pol open reading frame to produce the Gag-Pro-Pol polyprotein. Viral -1 PRF sites include three RNA elements: a slippery sequence, a 5-8 nucleotide spacer, and an RNA structure. We recently determined that the HTLV-1 pro-pol frameshift site includes a pseudoknot structure. By making a series of frameshift site mutants, we showed that the pseudoknot structure was critical the 19.4(±0.3)% frameshift efficiency measured for the wild-type (WT) site. Surprisingly, when the WT frameshift efficiency was measured at 30°C, instead of 37°C, there was a sizeable increase (28±1%). Given that we have not yet measured the frameshift efficiencies at 30°C for the mutated frameshift sites, it is unknown whether our previous conclusions made with data from 37°C experiments are valid. We aimed to fill this gap in knowledge by measuring the in vitro frameshift efficiencies at 30°C for all frameshift sites included in our previous work. Preliminary data generally have increased frameshift efficiencies, but the large percent error limited our ability to draw conclusions. Experiments directed at reducing the error in these measurements are ongoing. Ultimately, this work is important because it aims to clarify the mechanisms of a key step in the HTLV-1 virus life cycle. This understanding can be eventually utilized to target viral replication.
Exploiting Causal Structure for Transportability in Online, Multi-Agent Environments

Damian Browne

Autonomous agents may encounter the transportability problem when they suffer performance deficits from training in an environment that differs in key respects from that in which they are deployed. Although a causal treatment of transportability has been studied in the data sciences, the present work expands its utility into online, multi-agent, reinforcement learning systems in which agents are capable of both experimenting within their own environments and observing the choices of agents in separate, potentially different ones. In order to accelerate learning, agents in these Multi-agent Transport (MAT) problems face the unique challenge of determining which agents are acting in similar environments, and if so, how to incorporate these observations into their policy. We propose and compare several agent policies that exploit local similarities between environments using causal selection diagrams, demonstrating that optimal policies are learned more quickly than in baseline agents that do not. Simulation results support the efficacy of these new agents in a novel variant of the Multi-Armed Bandit problem with MAT environments.

Exploring Resilience in College Students

Michael Liu

First-generation college students are students whose parents did not complete a four-year college degree (Explore Brown University). In the 2015-2016 academic year, first-generation college students comprised 35% of incoming undergraduates (Skomsvold, 2014). Among first-generation students, Hispanics were the largest group and white students were the smallest. First-generation college students often have more challenges and face more barriers to graduating from college compared to non-first-generation college students. Resilience is defined as the process of adapting to adversity, tragedy, trauma, threats, and other sources of stress that include serious health problems, family and relationship problems, and financial trouble (“Building your resilience,” 2012). A previous study discovered that first-generation college students expressed higher levels of resilience and lower levels of emotional intelligence in comparison to non-first-generation students (Alvarado et al., 2017). Depression is a common medical illness that negatively affects the way a person feels, thinks, and acts (“What Is Depression,” n.d.). Currently, there is a lack of research on how levels of resilience correlate with levels of depression between first-generation college students and non-first-generation college students. This study hopes to fill this gap. My hypothesis is that first-generation college students with high levels of resilience will also have higher levels of depression than non-first-generation students. This project received IRB approval and student responses were collected. Statistical analysis will be conducted.

Factors Affecting Alcohol Consumption Patterns Amongst Students at Southern California Universities

Riley Brown

Introduction: University attendance is a known risk factor for alcohol use and misuse. While past research has shown the severity of this risk depends on several interrelated factors, including peer and family perceptions/acceptance of alcohol, little research has been conducted into the role individual university culture plays in the initiation and continued use of alcohol. Methods: Patterns of past 30-day alcohol consumption among students (N=303) attending two Southern California universities, Loyola Marymount University (LMU) and California State University Dominguez Hills (CSUDH), was measured via a cross sectional survey administered during the Fall 2020 semester. An analysis was conducted to determine if a student’s perception of overall university alcohol use/acceptance mediated the relationship between peer perception/acceptance of alcohol use and a student's overall alcohol consumption. Results: Students attending a non-commuter, majority non-Hispanic white university, consumed significantly more alcohol than their peers attending a commuter, majority Hispanic university (past 30-day use: 70.2% vs. 46.8%; p<.001). The primary mediation model indicated university perception/acceptance was a significant mediator of the relationship between peer use perceptions and past 30-day alcohol use [OR: 2.02 (CI: 1.39, 3.22)]. Conclusion: This study provides evidence that overall university culture may influence and alter alcohol consumption patterns among students. A heightened awareness of peer and university perception of alcohol use may provide potential for universities to develop tactics that reduce alcohol consumption among their student populations.
**Fast algorithms for statistical ranking with application to COVID-19 symptom scores**

Shelby Ferrier

In our research, we are interested in developing fast algorithms to find the statistical ranking on data that is highly incomplete and unbalanced. Based on the HodgeRank algorithm, we can describe the ranking problem on graphs and define the least square problem that measures the reliability of the ranking. As the size of the data set becomes larger, it gets more expensive to compute the ranking accurately. This motivates us to design approximation algorithms that reduce the graph size and efficiently compute part of the ranking (e.g., the top 10). We apply the proposed algorithms on various data sets including COVID-19 symptomatic data to examine their efficiency and accuracy.

**Female Gamers and Social Media: How Gender Norms are Perpetuated Online**

Julia Koo

As of 2021, the United States has seen a shift as more female video game players have taken up the predominantly male hobby. Social media is a common place for female gamers to share their experiences about gaming by posting content others might relate to. However, there is little research regarding how gender norms and stereotypes affect female video gamers in gaming communities on new, trending social media platforms like TikTok. Drawing on a content analysis of viral videos on TikTok under the #GamerGirl hashtag, I examine the following question: how do gender norms affect female video gamers in gaming communities on TikTok? The findings of the content analysis of the top 50 videos and approximately 10 comments per video revealed that both the content of the videos and the comments challenged the idea that women can be “real” gamers, employing gender stereotypes about women owning gaming equipment, and using their sexuality to be successful. Comments suggested that female gamers are successful because they wear revealing clothing and borrow their partner or brother’s gaming equipment. Surprisingly, a portion of the comments left on various videos were supportive of female video gamers and even agreed with what she would be talking about in the video. These findings shed light on contemporary perceptions of female video gamers through the perpetuation of stereotypes on TikTok.

**Fluctuating asymmetry indicates developmental stress in N. lepida, P. maniculatus, and O. torridus**

Grace Bruess, Sarah Hofmeister, Daniella Nanula

In the presence of environmental stressors, development may be negatively affected causing bilateral vertebrates to deviate from symmetry which can be measured as fluctuating asymmetry (FA). In addition, bioaccumulation of pollutants creates higher concentrations of pollutants up the food chain, and accumulation of pollutants may result in more FA. This effect can be measured using skulls to identify the degree of bilateral symmetry through landmarks—identifiable sutures on the skull. This allows FA within and between species to be assessed. In this study, skulls of three rodent species, Neotoma lepida, Onychomys torridus and Peromyscus maniculatus, are examined to understand the effects of pollutants and trophic level on symmetry in vertebrates. Specimens from the region near Owens Lake, CA — a polluted EPA non-attainment site — are compared to those from adjacent areas with likely lower pollutant levels. It is hypothesized that species near Owens Lake will show higher FA compared to those outside, and that the more omnivorous O. torridus will have higher FA levels than the purely herbivorous N. lepida, due to the difference in trophic level. P. maniculatus and N. lepida are expected to show similar amounts of FA within locations, as they are both herbivores. Principal Component Analysis (PCA) results show higher amounts of FA in O. torridus in the more polluted region compared to outside the region as well as in comparison to N. lepida. Future analyses will be performed with more carnivorous and larger vertebrates to assess FA at higher trophic levels.
Foliar Water Uptake in Larrea tridentata
Aiden Burnett

There currently exist many gaps in our knowledge on the subject of foliar water uptake and leaf hydrophobicity. Foliar water uptake is the process by which many plants absorb water through their leaves. This seems contrary to the typical model of water movement from root to shoot, exiting at the leaves, but this has been observed as a viable survival strategy for plants in humid cloud forests. (Eller et al. 2013) This project seeks to build upon existing knowledge by researching the possibility for foliar water uptake in desert plants. Larrea tridentata, or the creosote bush, is native to the Sonoran Desert and coats its leaves with a waxy resin. During the rare instances of rain, the resin is possibly removed from the leaves. It was theorized that the resin functions in dry conditions to increase leaf hydrophobicity and reduce water loss through foliar evaporation and a decrease in resin following rain would allow foliar water uptake. This was investigated by treating leaves to remove resin and assessing the hydrophobicity of both treated and resinous leaves. It was found that resinous leaves are significantly more hydrophobic than those from which resin was removed. Further, the abaxial leaf surfaces are more hydrophobic than the adaxial surfaces. This may further examined in the context that Larrea tridentata leaves “open and close” thereby exposing their adaxial surfaces to moisture when foliar water uptake is possible.

Food Classification in a Spoken Diet Tracking System
Rosetta Hu

As health and well-being become increasingly important, mobile applications for dietary tracking attract much interest. However, these applications often require users to log their meals based on relatively unreliable memory recall, thereby underestimating nutritional intake and, thus, undermining the efforts of nutrition tracking. To accurately record dietary intake, there is an increasing need for computational methods. To enhance the accuracy of nutritional assessment by allowing the user to log their meal with both natural language and a photo, we propose a novel Vision-and-Language model trained on a food-specific image-text dataset, achieving a held-out test set accuracy of 86.8%. Due to limited open-source multi-modal food classification datasets, we have gathered a new dataset consisting of 166 categories. The dataset maps images to natural language sentences, aligning with user input to better generalize to the task of recording food intake and estimating dietary calories. The features of the images are extracted by a 5-layer CNN model, and text input is processed by a 1-layer LSTM model along with embedding and dropout layers. The classification outputs of the two branches are concatenated and handled together by a final dense layer to obtain the global output.

Food is Power: Exploring Asante Microfarm's Mission to Empower Small-Time Growers
Faith Nishimura, Tyler Walker, Ryan Walker

In this project, we sought to answer the question: How do small companies exercise agency to challenge the inequalities existing within the nutritional landscape of America? As an entry into the Institute of Business Ethics and Sustainability’s inaugural Promotion of Justice Challenge, our project, “Food is Power,” examines Crop Swap LA, a Los Angeles-based social enterprise that aims to eliminate food scarcity, improve nutrition, and promote sustainable agriculture by farming unused urban spaces and selling nutrient-dense produce to the local community. On-site interviews with the founder Jamiah Hargins, volunteerism at Crop Swap LA’s Asante Microfarm, and Aim2Flourish’s Appreciative Inquiry analysis method were employed to identify and tell the story of Crop Swap LA. In a business profile and video, we explore business practices, impact, and scalability related to the United Nations’ Sustainable Development Goals: “Zero Hunger,” “Reduced Inequalities,” and “Sustainable Cities and Communities.” Through our work, we recognized the pervasiveness of food insecurity in our own backyard and understood how the quality and availability of nutritious foods disproportionately affect communities of color. Crop Swap LA is strengthening the creator economy, providing nutrition to local food deserts, and generating a global movement towards food independence. Though small, Crop Swap LA serves as a framework for other enterprises that business for good can manifest change and empower others to take agency. By studying those making the greatest strides to fight injustice, we now realize our internal power and know we can make a difference as future business leaders.
Fractured Sky: Crafting a Dynamic Tactical Role-Playing Game Through Procedural Generation

Booker

Fractured Sky is a tactical role-playing game with a story that hinges on the balance between making moral decisions and pursuing power. This game will be one of the first of its kind to feature fully procedurally-generated levels in which every component of the level can be interacted with by the player.

Each level will be procedurally-generated and, thus, entirely unique and never experienced before by any player. Because each tile and object is placed through procedural-generation, it can act as its own entity independently of the surrounding tiles. As a result, this gives us the ability to modify certain parts of the level instead of placing one unified, static map. Every level changes as the player progresses through the level — explosions will damage and destroy the surrounding environments, characters can break down walls, and all containers can be searched and looted. This creates a more interactive experience compared to typical games of the tactical RPG genre and fosters replay-ability because the next playthrough will feature entirely new level layouts.

On top of this, Fractured Sky will include branching story options that can impact the narrative and introduce new endings. This will further encourage players to replay the game to discover all possible options. My goal is to make the player’s choices truly matter as if they are experiencing a dynamic universe instead of a game where everything has been determined before the title screen boots.

Friendship with a Virtuous Person as a solution to the Problem of Acquiring Virtue

Anacan Mangelsdorf

In Aristotle’s Nicomachean Ethics, there arises a problem: insofar as someone does not have virtue to guide his particular activity, he cannot consistently act to acquire virtue. This would leave us without any reliable way to become virtuous, and hence, without any reliable way to achieve happiness.

In this work, I show that friendship with a virtuous person guides someone not yet virtuous to acquire virtue, thus providing a way out of the problem of how to acquire virtue, by performing the guiding roles that virtue otherwise does. Briefly, in outline, the four ways that friendship with a virtuous person guides are the following.

A virtuous friend guides the not yet virtuous person toward his virtue in the manner that a final cause guides. The virtuous friend’s counseling both improves the not yet virtuous person’s cleverness as the capacity to calculate and perform means toward any end, and develops this cleverness into practical wisdom—i.e., cleverness aimed toward virtue as its end. Lastly, sharing in the activity of friendship with a virtuous friend guides the not yet virtuous person directly to acquire virtue.

Hence, in these ways, friendship with a virtuous person friendship guides the not yet virtuous person to acquire virtue, thus providing a solution to the problem of how to acquire virtue.

Grain Size Analysis of Sediment in Zostera marina Seagrass beds

Joseph Correy

Seagrass is well known as a great mechanism of carbon sequestration in coastal ecosystems. Specifically, Zostera genus species have displayed resilience to multiple abiotic and anthropocentric environmental stressors that are already being amplified by climate change. Zostera marina is a versatile seagrass species that grows in primarily temperate regions all throughout the world. In order to be able to utilize Zostera marina as a tool to combat the effects of climate change, it is critical to understand what conditions Zostera marina is tolerant in. In this study we analyzed shoot density of four healthy Zostera marina seagrass beds along the California coast and took sediment cores from each bed. The sediment from these samples was then dried, had organic carbon removed, and then was put through a grain size analysis procedure. This involved separating the grains first through a set of sieves to remove and measure anything above 125 micrometers, and a hydrometer analysis of all grains smaller than 125 micrometers. The four beds that were selected had varying sediment
types ranging from primarily sand and small gravel to primarily mud and fine sediment. After data collection is completed, a two-way ANOVA will be run to compare the grain size distribution and shoot density of each bed. With this information we hope to help inform future conservation and restoration efforts and aid in their targeting of potential sites to aid Zostera marina seagrass beds.

GREECE: FROM MYTHOLOGY TO FILM
Chloe Hightower

Greek mythology has been ingrained into public knowledge through media recreations. Plays have performed and portrayed the myths and stories that have been beloved by the masses in the Western world, and it has now manifested a revival in film, especially Greek film. The Greek films in focus, Vasy's Odyssey, Persephone, and Eleusis, use the motif of Greek mythology specifically to explore themes of personal transformation in the characters. Vasy's Odyssey uses the story of Odysseus by Homer to complement the movie's theme of change in one's character after going on a physical journey. Persephone highlights the transformation of a girl into a woman by using the story of Persephone's abduction. Eleusis, a short documentary, shows the importance of history and an identity molder, and how that leads to the transformation of its inhabitants.

The research used in this essay was a collective of analytical essays on certain Greek stories of antiquity along with the three movies itself for analysis. I found that the transformation in all forms is an important theme in Greek culture because of its history. Whether it is a financial upheaval, pubescent growth and maturity, or cultural identity, the motif of creating one's own identity is a theme found in Greek mythology and modern Greek film. The significance of the research is to find the mediums of art that connect most with certain people from around the world and also to find the link between its historical roots and the messages they relay in their stories.

Healing Justice
Andrea Guardiola

This project defines Healing Justice by discussing the practice and theorizing of Healing Justice as well as who is doing this work. This essay provides an introduction/overview of the way Healing Justice has been practiced and theorized about by disabled Queer, Trans, Black, Indigenous, People of Color (OTBIPOC) circles and communities. This project provides a brief record of what Healing Justice means when disability, gender and racial liberation, trauma, decoloniality, and movement organizing are centered in the work. Researching events where Healing Justice has been practiced by specific groups and reviewing literature discussing the process informed this definition. The findings of this research were found by investigating who organized a Healing Justice Practice Space at one forum or who started a Healing Justice collective and then finding the source of what and who else influenced their work. This essay finds that Healing Justice is a movement, a political strategy, and a framework centered around healing collective and individual trauma as an aim towards liberation. Healing Justice aims to unlearn and restructure violent logics that pathologize and marginalize people by reducing pain and anxiety and instituting dignity and humanity for people and practices that have been denied these things. Too often the current systems attempting to heal the violence of racial and gendered inequalities end up replicating the systems that made them necessary in the first place. Healing Justice focuses on healing systemic and individual trauma, reimagining and creating new ways to relate to and support each other.

High Speed Nanometer Resolution Interferometry with Multiple Probes
Garrett Ponce

The best distance measurements that can be achieved with an interferometer have an accuracy of around 0.5 μm, due to necessitating a Fourier transform. Because of this, the most accurate distance measurements and surface mapping techniques use touch contact to measure. In many fields, such measurement techniques are often not possible. The purpose of our research is to achieve an accuracy of ±4-5 nm, which is one hundred times more accurate than previous methods, through the use of a MATLAB code that serves as an alternative to a Fourier transform. The physical setup includes two Michaelson interferometers with fixed targets and one moving target connected to a nanometer controller.
and strain gauge sensor. The code utilizes a mathematical equation that relates initial distance to target in micrometers, change in wavelength in the frequency domain, initial wavelength, and change in distance in nanometers. Initial distance and initial wavelength are calculated once when calibrating and then are set to be constants, while the change in wavelength is calculated from live data. Through this method our code achieves an accuracy of ± 3 nm standard deviation with respect to the strain gauge sensor in real time. We plan to test whether this accuracy could be extended to surface mapping with two probes simultaneously, and therefore could be utilized in manufacturing electrical components.

**Housing Affordability in Los Angeles**
*Dylan Flood*

Housing affordability is one of the most prevalent and visible issues affecting Los Angeles today. This project aims to analyze how different groups of Angelenos perceive housing affordability in Los Angeles City and County. Reviewing data from the 2,003 adults surveyed for the 2021 Los Angeles Public Opinion Survey conducted by the Thomas and Dorothy Leavoy Center for the Study of Los Angeles, I analyzed the perception of housing affordability among different groups of Angelenos based on their age, race, and whether or not they live in the city or county of Los Angeles. The data show that a vast majority of Angelenos perceive housing in Los Angeles as unaffordable overall. Each different group of Angelenos surveyed showed a consistent belief in housing being unaffordable. For example, about 80% of people living in either the city or county of LA believed housing is unaffordable. In addition, a significant majority of Angelenos of every race and age group surveyed held the same belief. It is obvious that housing affordability is a massive problem affecting the Los Angeles region today. This project shows that housing affordability is a universally pressing issue throughout Los Angeles and solutions are necessary to change the status quo which has failed the vast majority of Angelenos. The nearly universal agreement among Angelenos shows the magnitude of the issue.

**How do Laypeople and Professionals Define Diversity, Equity, and Inclusion?**
*Maya Rosenman*

This research project was designed to assess operational definitions of ‘diversity’, ‘inclusion’, and ‘equity’ (DEI). DEI movements originated in academia and have rapidly migrated to media, corporations and government. But what do these terms mean? They all have dictionary definitions, but in the context of the DEI movement these terms are not clearly defined or consistent. In addition, how do the general public's and DEI professionals' definitions of these terms differ? To assess these questions we developed a survey to assess various DEI definitions and then administered the survey to three groups: (a) laypeople with DEI training, (b) laypeople with no DEI training, and (c) DEI professionals. Statistical analyses of the survey results revealed significant definitional differences between laypeople with no DEI training and the DEI professionals. We found differences in these groups' definitions for diversity and equity, but not for inclusion. This suggests that diversity and equity are more complex subjects than inclusion, with more room for definitional difference. The significance of this research project is that it may help to provide a framework for clear and consistent DEI definitions that are more widely agreed upon by both DEI professionals and laypeople.

**How Significant Others of Military Personnel Maintain Communication within their Relationships**
*Anne Burke*

This study examines military relationships that cause partners to be affected by physical distance with their significant other who is a member of the military. Several factors are considered ranging from location and communities to children. Participants share communication skills, support, and other strategies they use to contribute to stability within the relationship and ease for any challenges. Military relationships consist of “turning points” that include significant events that provoke emotional responses; and participants share stories and examples of events that most affected them, such as deployment, reuniting, or becoming married. The concept of Relational Maintenance is explored throughout, as well as application of the Attachment Theory.
Identification of mRNAs Bound to tRNA Synthetase Enzymes
Aishwarya Bhutkar, Finnegan Mercer

Identification of Plant Associated Bacteria Able to Tolerate Abiotic Stress
Kasra Arjomand

An increase of urban development in Southern California, specifically on the coast, has negatively impacted the native population of vegetation. Two local areas highly affected by urban development include the El Segundo Sand Dunes and the Ballona Wetlands, in which active restoration efforts are being made to reintroduce native vegetation such as Lupinus bicolor, Cressa truxillensis, and Camissoniopsis cheiranthifolia. However, poor germination rates during broadcast seeding efforts have hindered these efforts. This project focuses on addressing the challenge of restoration during a time of drought in California. It aims to find methods that increase seed germination through inoculation with plant growth promoting bacteria, which have been shown to combat abiotic stresses such as drought and salinity stress. Over 200 bacterial strains from the 2019 and 2020 LMU BIOL112 General Biology Labs were tested for tolerance to salinity stress (including 0%, 1%, 5%, and 10% NaCl) as well as other properties indicative of plant growth promoting capability. Six strains (2.7%) were found to grow under every concentration of salt, suggesting them as good candidates for fighting against abiotic stress, such as salinity stress. In addition, the majority of strains solubilized phosphate, indicating a potential to help plants survive under nutrient stress. Further testing in order to simulate abiotic stresses, such as drought and high salinity, and observe plant growth after bacterial inoculation is being carried out.

Identifying an Effective and Accessible Instrument for Passive eDNA Collection
Rukhbaan Hayer

Environmental DNA (eDNA) is introduced to marine environments when organisms leave behind genetic material through tissue or waste. eDNA can be collected and sequenced to provide both qualitative and quantitative information regarding the biodiversity and biomass of aquatic ecosystems. Compared to the traditional eDNA sampling methods which require active water filtration to obtain genomic eDNA, this study tests a passive and simple to use alternative approach. Passive eDNA collection could potentially accelerate conservation efforts, allowing for an increased rate of sampling and thus a more rapid return of information. Specifically, a membrane capable of capturing nucleic acid is placed in the water column and traps eDNA. Passive eDNA collection is still a novel method, and few studies have explicitly aimed to improve upon the efficacy of eDNA collection. The purpose of this study is to identify a membrane that increases the efficiency of passive eDNA collection, at a low cost and is commonly accessible. Five widely available candidate membranes were deployed in still water, flowing water, and in coastal waters and assessed for capacity to collect eDNA. Collected eDNA was extracted and sequenced from each candidate membrane. A quantitative comparison was then performed to compare the candidate membranes. Factors regarding accessibility such as cost, availability, and size were recorded to select an industry standard.

Identifying bias in news media: A natural language processing approach
Veronica Backer-Peral, Elena Martinez, Andrew Seaman

In the modern proliferation of online news sources, the same topics can be presented in different ways that appeal to, and influence the opinions of, readers of different political affiliations. This can result in the creation of information bubbles that reinforce partisan division. Utilizing techniques in machine natural language processing, we can generate computer models that automatically identify bias in news articles and excerpts. However, there is a danger to these supervised learning models with subjective as opposed to objective labels;

they are built using thousands of “bias” scores assigned by humans to news articles, but it is possible that different people have different definitions of bias. To understand and address the problem of subjective labels, this work is partitioned intro three studies: In the first stage of this project, we demonstrate that Republicans and Democrats perceive bias in news differently and that the news media source plays a significant role in this perception. In the second stage, we
illustrate the real-world consequences that biased news sources have on public opinion of policy options. The third stage compares the efficacy of two natural language models which identify bias in text from the perspective of Democrats and Republicans. The model serves as a tool for news sources to understand and lessen bias in their articles before publication, and it also gives insight into the structures of subjective perceptions of bias.

**Immigration and Incarceration: A Sociological Exploration of Systems of Detention**  
*Amani Ortiz-Syed*

This study focuses on developing a literature review about mass incarceration, immigration detention and their intersection as systems of state control. The comparison between these two forms of detention gives insight into the similar struggles individuals face and examines the differences. In order to build my literature review, I searched through library databases with the terms ‘immigration detention,’ ‘mass incarceration,’ ‘United States’ and narrowed down the selection to those that seem to best fit my study focus. The literature review contains ten articles that were narrowed down from the search of 70 articles. I summarized each of the articles and found a set of common themes to identify the connections between these two systems of detention. These themes are the conditions inside (the mental and physical effects it has), the impact on families, and the struggle with re-integration. The purpose of examining the existing literature is to create a foundation upon which I can develop a future research project that fully compares these two systems, explore the rationale behind detention as a way of imposing punishment, and understand the implications of these systems on communities of color. Ultimately, I want to question the fairness of these types of punishment, see if we need to develop alternatives to these systems and discover more humane ways of managing populations that violate norms of white supremacy. The research question that guided this study is: How are the systems of mass incarceration and immigrant detention related to one another as means of state control?

**Impacts of Shifting Demographics in Los Angeles on Elected Leaders**  
*Simona Vishnevsky*

Since 1950, Los Angeles County has seen a demographic shift that expanded the representation of minorities in political offices from 1950 to 2021. Over the next four decades, the U.S. Census Bureau projects an increase in Black, Latinx, and Asian individuals as a percentage of the population of the U.S. This study examines political incorporation, documents political incorporation in Los Angeles county as measured by the population and the elected officials in the county. This study also analyzes how political incorporation has occurred, the policy consequences of such incorporation, and asks if the incorporation is completed in Los Angeles County. This study utilizes the Center for the Study of LA’s Top 100 Running Roster dataset tracking officials holding the 100 most influential offices in LA County by race/ethnicity, gender, and political affiliation since 1950 (n=6,636). The Top 100 offices are defined by budget, perceived prestige, and number of constituents. To augment the statistical analysis, I will survey professors in order to assess whether Los Angeles County has achieved political incorporation and the implications of this. This research can contribute to a greater understanding of the demographic shift that is predicted for the country as a whole.

**In Defense of Free Speech: Section 230 and the Marketplace of Ideas**  
*Maxwell Himmelright*

Free speech has come under renewed attack. Amidst political polarization, worries over the monopoly power of Big Tech, and concern over the spread of false information, support for greater censorship of the marketplace of ideas has grown. Section 230 of the 1996 Communications Decency Act has come under particular scrutiny as members from both the political right and left, for separate reasons, have called for modifying or revoking the statute. While false speech and its capacity to spread on the internet is a serious concern, the solution must not worsen the problem or limit free speech. This thesis argues that heavily amending or revoking Section 230 would be counterproductive and result in drastic consequences for free speech. How, then, can government and society address concerns over false speech on the internet while maintaining free speech protections? This thesis will examine three case studies — the controversy surrounding the origin of COVID-19, FOSTA-SESTA, and a hate speech law in France — all of which involve the dangers of false speech as well as the consequences of censorship. Following the case study analysis, this thesis will conclude that the marketplace of
ideas is the most helpful theory by which to address current concerns over false speech while maintaining free speech protections.

**Infrared Optical Communication Relay System**
*Ian Green, Natalia Cedeno*

Free space communication systems have enjoyed increased attention due to their high transmission speed, high throughput, and infrastructure-free applications. However, these systems are generally either expensive or static devices. An affordable, dynamic system is required for the creation of ad-hoc networks and to widen adoption of the system. An affordable dynamic system was designed using commercial off-the-shelf products and widely accepted standards, allowing for hobbyist and personal use. The components were tested and operation of greater than 900Mbps was confirmed for the system operating with a fiber optic cable as a transmission medium. This system was designed to operate in near-infrared and was chosen to be eye safe for wide adoption. Work remains to confirm operation of the system in free space and to implement the dynamic scanning system.

**Institutionalizing Identity: Examining the Louvre in Revolutionary and Napoleonic France**
*Emma Balda*

With the collapse of the French monarchy in 1789, France sought to solidify their sense of national identity in the wake of revolution. Since the late eighteenth century, museums have long been used to foster nationalism and belonging through the institutionalization of historical narratives-- the opening of the Louvre in 1793, and its transition from a royal palace to a palace of the people, served as a physical metaphor of the complete political transformation that occurred during the French Revolution. Existing literature examines the revolutionary nationalization of the Louvre as it relates to the concept of the modern museum and the field of public history, especially in the eighteenth century and leading into the Napoleonic era. This paper will extend on the nationalization of the Louvre in relation to France's search for national identity and the artifacts they needed in order to do so, in addition to considering the ways in which this need to find a new identity often came at the cost of marginalized communities through the looting and reframing of artifacts from places like Egypt, Asia, and Africa. These questions will be examined through the use of artifact analysis, government documents, and newspaper articles. Additionally, this will be framed through Edward Said's Theory of Orientalism, examining the Louvre's influence in feeding into French Orientalism through the presentation and collection of 'exotic' artifacts during Napoleon's conquests.

**Interaction and Mental Health**
*Grayson McKim, Aiden Meyer*

How can we define the relationship between player and player character (PC)? Video games create a parasocial relationship between us and who / what we play as. The nature of this relationship is essential to most games- players must be able to interact with the game somehow, and controlling a character accomplishes this while also connecting the player to the game's world. We believe that game designers should carefully consider the balance of this relationship as it pertains to their game. The extent to which players can influence the PC creates a thematic notion of what humanity is actually capable of.

The goal of this project is to investigate this topic specifically as it pertains to stress, and more broadly, mental health. Since games can tell us what we're capable of controlling, we want to make one that espouses a healthy view regarding mental health agency, and hopefully demonstrate to the industry as a whole the importance of thoughtful depictions. Over seven months, we developed such a game from start to finish. With a strong narrative emphasis, we looked to investigate different ways of allowing the PC's mental state to affect the player's actions through both story and gameplay, creating a dynamic where the player recognizes the difficulty of “controlling” their actions. By implementing these systems, we hoped to demonstrate a hopeful yet accurate depiction of mental health struggles.
Interaction of RGG-motif peptides with MYC promoter G-quadruplex
Konstantin Danielyan, Alexander Barber, Leah Mizuno, Kharial Clark, Khaliah Sanders

DNA G-quadruplexes are secondary structures of DNA consisting of two or more stacks of G-tetrads – square planar structures consisting of four guanine bases associated together through Hoogsteen hydrogen bonds. The quadruplex structure can occur naturally in G-rich sequences and has been identified in telomeres and gene promoter regions. Proteins and ligands can bind G-quadruplexes, stabilizing DNA and RNA, and inhibit or promote replication, transcription, and translation. As these structures are linked to such diverse functions, understanding how proteins can bind and stabilize the G-quadruplex structure has garnered significant attention.

The MYC oncogene, overexpressed in a wide variety of cancers, plays a key role in cancer progression, and contains a quadruplex motif in its promoter region. The G4 structure that forms in the MYC promoter functions as a transcriptional repressor element pointing to G4 structures as a therapeutic target to downregulate transcription. Arginine-glycine (RGG) rich domains have been found in many G-quadruplex (G4) binding proteins and have shown to contribute to G4-binding affinity. The goal of our research is to evaluate the binding affinity and stabilization effects of RGG-motif peptides with MYC promoter G-quadruplex structures. The effect of RGG-motif peptides on G-quadruplex stability was evaluated by changes in melting point curves as measured by circular dichroism. Experimental results showed that RGG-motif peptides can bind and stabilize the parallel G-quadruplex formed within the MYC oncogene promoter.

Internal Speech Error Correction Mechanism
Emma Murphy

The existence of an internal detection or “monitoring” system for speech production has been suspected for some time, however it has never been directly researched. While not the main focus of their study, a FMRI experiment by Okada et al. (2018) found suggestive evidence for such a mechanism in the posterior middle temporal gyrus (pMTG), a region of the brain implicated in lexical-level processes. In the study, they asked participants to recite tongue twisters that tend to generate slips of the tongue. Half of the trials involved stimuli that biased the errors toward real words and half biased errors toward non-words. They found that the brain distinguished between error-type conditions – nonword biased trials resulted in more activity than word biased trials – a process called the lexical bias effect. In other words, the mere potential for a nonword error engaged this neural network, even when no error was committed. The corresponding imaging data showed this distinction through pMTG activation. The present study sought to build upon this suggestive evidence with the addition of a ‘taboo tongue twisters’ condition. The additional condition was developed in order to directly tax the error correction mechanism. During these error correction trials, we did not identify significant pMTG activation as seen in Okada (2018); rather, we identified significant bilateral activation in the angular gyr, a brain region that is known to be involved in semantic processing. Therefore, suggesting that both the pMTG and the angular gyr are involved in a speech error correction mechanism.

Intimate Partner Violence Perpetration among the LGBTQ Military/Veteran Population
Denise Espinoza

Intimate partner violence (IPV) among LGBTQ couples remain a public health problem in both civilian and military populations. The existing literature tends to focus on male to female IPV perpetration. There is a gap in knowledge on IPV perpetration among LGBTQ military/veteran population. In an effort to better understand how risk factors uniquely affect this populations as veterans or active-duty military members, a systematic literature review, employing PRISMA analysis, is conducted to map out the various gaps surrounding IPV perpetration among Military/Veteran LGBTQ population by exploring risk factor pathways (i.e., core descriptive, core temporal, and core interactive): Substance Use, Impellence (Dispositional Qualities) Anger Traits, and Relationship Instigation/Provocation factors. Queries were limited to peer-reviewed articles published in Google Scholar and PubMed between 2011-2021. Findings indicate that individual, social, and economic factors are associated with a heightened risk of IPV perpetration among LGBTQ military/veteran population. Specifically, it was found that low SES, mental health, substance use and misuse, military socialization, and gender paradigms are factors that pose risks for IPV perpetration among the LGBTQ military population. This study
impact decision-making shows that the usage of cognitive reappraisal to regulate negative emotions has been positively
deliberative processes, however, is heavily debated. The Iowa Gambling Task (IGT) is a measure of risky decision-making
(emotion-related signals in the body) guides IGT performance. Research exploring how emotion regulation strategies
knowledge guides advantageous decision-making, others propose that an implicit pathway dependent on somatic markers
be discussed.

**Invasive Plant Brush Piles as a Means for Habitat Conservation and Restoration**
*Evette Mestetsky*

Invasive plant species are a threat to native plant and animal species in numerous terrestrial environments around the
world. In addition to competing directly with native plants for space, water, and nutrients, invasive plants may alter or
degrade conditions such that food sources and shelter are compromised for native wildlife. Manual removal of invasive
species is expensive and labor intensive, especially when factoring in the costs of transporting invasive plant biomass off-
site. Here, we test a novel approach that uses removed invasive plant biomass for the construction of brush piles on-site
to not only test a method of invasive species reduction, but also enhance available native wildlife shelter options. We
hypothesize that the created piles of biomass will concentrate invasive plant seeds in one area and reduce the
survivalship of any germinating seeds that fall below the pile due to reduced sunlight, compared to control plots.
Furthermore, we hypothesize the brush pile habitat will support a greater abundance and diversity of invertebrates
(snails, spiders, etc.) and mammals (per presence of scat and gopher holes) compared to control plots. Fifteen 10-
kilogram, 1m x 1m brush piles were constructed from dead tumbleweed, Kali tragus, in Ascot Hills Park in east Los
Angeles. Fifteen 1m x 1m control plots without brush piles were also delineated. Brush piles and control plots were checked bi-
weekly for the growth of tumbleweed seedlings and wildlife usage and compared statistically to evaluate if brush piles
could be used as a cost-effective weed-control and habitat restoration tool.

**Investigating Emotion Processing, Risky Choice, and Cognitive Reflection**
*Michelle Chernikova*

Emotions have a key influence on decision-making. The extent to which decisions are informed by gut feelings or
deliberative processes, however, is heavily debated. The Iowa Gambling Task (IGT) is a measure of risky decision-making
used to assess emotion-based learning. While some studies suggest that an explicit pathway reliant on conscious
knowledge guides advantageous decision-making, others propose that an implicit pathway dependent on somatic markers
(emotion-related signals in the body) guides IGT performance. Research exploring how emotion regulation strategies
impact decision-making shows that the usage of cognitive reappraisal to regulate negative emotions has been positively
associated with IGT performance (Heilman et al., 2010; Heilman & Miclea, 2015). Other studies investigating effects of
stress on IGT performance find that stress interferes with learning on the IGT by impeding reflective/analytical thinking
(Simonovic et al., 2017). More reflective participants, however, performed better on the IGT, even under stress.

The current experiment has two aims: 1) to investigate effects of acute stress induced by anticipated public speaking on
risky decision-making and reflective thinking, and 2) to examine how emotional processes may moderate the strength of
these effects. We hypothesized that stress would hinder both IGT performance and reflective thinking. We also expected
that the ability to differentiate amongst negative emotions and habitual tendencies to use reappraisal will result in more
advantageous performance on these measures and less disadvantageous performance under stress. Data analysis is in
progress and implications for how emotional processes may buffer effects of stress on decision-making and cognition will
be discussed.

**Investigating how seed priming impacts the germination of California native plant species**
*Paul Lussman*

Beach Evening Primrose (Camissoniopsis cheiranthifolia) and the California Poppy (Eschscholzia californica) are both
native plant species being seeded at the El Segundo sand dunes as part of revegetation projects. However, germination
rates are often low. In order to maximize seed germination rates, we are looking at whether priming the seeds using
various methods could help. One common method of seed pre-treatment is allowing seeds to imbibe and then drying them
back out. This experiment investigates whether or not imbibing and drying the seeds has an effect on seed germination.
To do this, both C. cheiranthifolia and E. californica seeds were surfaced sterilized and either immediately dried or soaked
in sterile water to imbibe for one hour or overnight and then left to dry overnight. The seeds were transferred to filter paper saturated with water in Petri dishes and incubated at 20°C. After one week of incubation, the number of seeds that germinated for each plant and each treatment were assessed. Both plant species showed 60-80% germination and there was no statistical difference between unimbibed and imbibed seeds. Therefore, imbibing and then drying the seeds does not appear to improve or reduce seed germination rates under these conditions. We are currently testing whether priming will improve germination under abiotic stress and whether microbial inoculants will improve seed germination.

Investigating Novel mRNA Binding Proteins Using a Reporter mRNA
John Omiya, Daniel Nguyen

The central dogma of biology is the process by which DNA is transcribed into RNA, which is then translated into proteins. Certain proteins bind to mRNA, thereby affecting protein synthesis. These proteins that bind to mRNA may change the translation, stability, and location of the mRNA. Proper regulation of mRNA is required for many essential biological processes, and misregulation of mRNA can result in disease. To further understand the effects of novel mRNA binding proteins found in yeast, we are fusing an RNA binding domain to these proteins to tether them to a reporter mRNA. This allows us to monitor the effects of these proteins on translation and mRNA decay. We used standard cloning procedures on 17 of these genes to create the fusions to the RNA binding domains. However, this multi-step process proved challenging, as no genes successfully made it through the entire process. We have now turned to CRISPR-Cas9, a modern and powerful tool for genome modification, to insert the RNA binding domain sequence directly into the yeast genome. As we complete our modifications, we are preparing the final stages of monitoring reporter RNA stability and translation.

Investigating proposed novel mononuclear first row transition metal catalysts for photooxidation
Sidney Starr

Mononuclear ruthenium photocatalysts show great promise in the lab for the oxidation of water. Ruthenium's scarcity incurs environmental and financial costs that discourage large-scale application. To explore alternatives to ruthenium photocatalysts, we build on our prior studies of comparing the energetics of the water oxidation mechanism for ruthenium to proposed iron catalysts. Here we use time-dependent density functional theory (TD-DFT) to calculate the excited electronic states for a range of mononuclear catalysts based on those two group 8 metals with varying organic ligands. At the steps requiring photons along the water oxidation pathway as seen in Photosystem II and the essentially analogous mononuclear synthetic catalyst mechanism, we compare the predicted UV/Vis spectra for proposed iron catalysts with those of working ruthenium catalysts to gain insight into optimizing their performance as photocatalysts. We hope insights from our study will help inform experimental design efforts to improve first row transition metal water oxidation catalysts.

Investigating the Role of Base-Triples in the HTLV-1 pro-pol Frameshift Site Pseudoknot
Madison Maille

The human T-cell leukemia virus type 1 (HTLV-1) RNA genome includes two programmed -1 ribosomal frameshift sites. Each site includes three RNA elements: a slippery sequence, a spacer, and a structure. We recently determined that the pro-pol frameshift site contains a pseudoknot structure. Research on other viral frameshift site pseudoknots indicates that contacts between single-stranded loop nucleotides and base-pairs in the stems are often critical to pseudoknot function. Although the HTLV-1 pseudoknot tertiary structure is not determined, base-triples may form between its two loops and two stems. To test the hypothesis that these tertiary contacts were critical to its function, the frameshift efficiencies were measured for the wild-type frameshift site and three mutants. Two mutants (A2295U and Loop 2 A to U) were designed to disrupt putative base-triples forming between loop 2 and stem 1. A third mutant (U2272C) was designed to evaluate the impact of a stem 2 G*U to G-C substitution. Preliminary data from quadruplicate measurements showed that the frameshift efficiency for all three mutants was moderately increased relative to the wild-type frameshift site. Whether the changes in the A2295U and Loop 2 A to U mutant frameshift efficiencies were caused by changes to tertiary contacts is hard to determine without complementary methods that establish their presence. Although the increase in the U2272C
The symbiotic relationship between rhizobia, such as Paraburkholderia tuberum, and legumes results in nodule formation on roots, where bacteria are housed and fix nitrogen for the plant. Lipopolysaccharide (LPS) is required for the progression of this nodulating symbiosis in some species of rhizobia, but its role in P. tuberum is unknown. The objective of this study was to determine whether P. tuberum requires LPS for nodulation and plant growth promotion. This was explored by looking at the nodulation phenotype of bacterial mutants in LPS assembly ( IPTE6 and BA117) or LPS production ( BA117 and CO07). Black bean plants were grown hydroponically with a nutrient solution without nitrogen and either inoculated with wild type P. tuberum or one of the mutants. After four weeks, the roots were observed for nodule development and color. The plant shoots were dried and weighed to determine the impact each strain had on plant growth. Only wild type bacteria resulted in pink nodules, whereas none of the LPS mutants showed evidence of nodulation. In addition, although the wild type bacteria resulted in increased plant growth compared to uninoculated plants, none of the mutants increased plant growth. Thus, our findings show that LPS is critical in allowing progression of the nodulating symbiosis and gives insight into the role of LPS in allowing bacteria to protect plants from environmental stressors.

**Investigation of the Santa Monica Bay Phytoplankton Community in Relation to Seasonal Changes**

*Francesca Conte*

Santa Monica Bay, which stretches from Point Dume in Malibu to the Palos Verdes Peninsula, is characterized by its high abundance of phytoplankton, and occasionally harmful algal blooms. Harmful algal blooms occur when there is an overgrowth of either toxic or non-toxic species, that result in unfavorable effects on local ecosystems. This study in particular aimed to investigate and interpret data from the Santa Monica Bay using the FlowCAM to understand how the Southern California phytoplankton community changes seasonally, and decipher any patterns relating to species abundance, with a specific focus on harmful species. Water samples from 12 different locations within the Santa Monica Bay were collected seasonally. These samples were filtered and then put through the FlowCAM for data analysis. The FlowCAM took microscopic photographs of the plankton present in the water samples, and these photographs were then organized by genus for each sample, in order to identify any major trends. It was found that the spring samples were by far the most abundant in terms of phytoplankton density and diversity compared to the other seasons. With this increased abundance of phytoplankton also came an increase in harmful species, specifically Lingulodinium polyedra. This drastic increase in phytoplankton during spring months is due to increasing light availability which warms the surface water, creating a high light and nutrient environment, which is ideal for rapid phytoplankton growth.

**Invisible Barriers**

*Lorenzo Lizardi*

Panic attacks are brief episodes of intense fear that cause a person to misinterpret their situation as catastrophic. There is often no physical threat present when a panic attack occurs, but the symptoms are very real and painful. Those who experience panic attacks frequently may be diagnosed with panic disorder, which I was diagnosed with in 2020. Anxiety disorders remain the most common mental disorders with around 40 million Americans suffering from one each year. Despite their prevalence, only around a third of sufferers receive treatment. How could this be? Invisible Barriers examines the many obstacles preventing people from accessing the treatment they need. This installation includes a series of graphic design pieces which illustrate the complex system of panic and mental healthcare. My project is designed to help
people better understand what panic attacks are like and what techniques they can use to treat them. Additionally, I hope that people with panic attacks can feel related to and realize that recovery is possible. I believe that the more we are educated about mental illness, the healthier we all can be.

**Isolating DNA from human hair to determine the frequency of the lactase persistence at SNP rs4988235**
*Catherine Channel, Odoba Okwuosa*

The human trait of lactase persistence (LP) is the ability to produce the enzyme lactase, and thus digest the milk sugar lactose, into adulthood. Reports of how many in the world’s population express this trait range from 16-35%, though this may be an overestimate. Most individuals worldwide are not able to metabolize lactose effectively, referred to as lactase nonpersistence (LNP). The consumption of dairy products by an LNP individual can result in mild to severe gastrointestinal symptoms such as bloating, gas, and diarrhea. The lactase enzyme is encoded by the LCT gene on chromosome 2, whose expression is regulated by an enhancer that lies over 13,000 base pairs upstream of the transcription start site. The T allele of the C→T variant (SNP ID rs4988235) at position -13,910 bp upstream of LCT, confers the trait of lactase persistence. Although the frequency of this SNP has been determined for some homogenous populations, it has not been reliably determined for the heterogenous US population. Our work seeks to fill this gap. We had previously implemented a protocol to perform restriction fragment length polymorphism (RFLP) genotyping from cheek cells obtained through a saline mouthwash. COVID-19 safety precautions have led us to develop and optimize a protocol for extraction of DNA from hair follicles instead. We explored incubation times, reagent concentrations, and the number of follicles required to achieve robust results. Finally, we report genotype frequencies obtained with this protocol from subjects at LMU.

**It’s Only Blood**
*Rebecca Briones*

Period stigma has existed since individuals started to menstruate and the stigma has carried on into modern day. It effects every individual who menstruates and can lead to menstruation related discrimination. There are many factors that allow for this stigma to remain prominent today. Some of those factors are cultural taboos and menstruation education. Menstruation is often associated only with women, this excludes any transgender or nonbinary individuals who may menstruate. These cultural taboos promote the idea that menstruating individuals are useless. A severe lack of menstruation education also plays into the stigma. Often times it is only cis-women who are provided with menstruation education. In order to tackle menstruation stigma it is crucial to examine period inclusivity and menstruation education.

**Jeremy Lee in a Senior Composition Recital**
*Jeremy Lee*

This recital represents the culminating performance for senior Music Composition major Jeremy Lee at Loyola Marymount University. The program features a selection of musical compositions that encapsulate different styles, genres, and unique compositional devices. Pieces also utilize a variety of arrangements and mediums, including compositions for multiple instruments and for film. Program notes for the included selections describe the historical influences and/or the personal stories and inspirations behind each piece. Performed live on April 21st, 2022, in Murphy Recital Hall.

**Just Eat...**
*Kristin Shields*

This presentation will highlight eating disorders in hopes to create awareness and break the stigmas behind what eating disorders look like. This is an effort to emphasize the connections between eating disorders and mental health, while also discussing the negative impacts of diet culture.
Knockdown of RNAi in the JAK/STAT Pathway of Drosophila melanogaster

Veronica Casarez, Tatum Laird

Several new genes in Drosophila melanogaster have been identified that cause hyperproliferation of blood cells, in both the hematopoietic organ (lymph gland) and circulating cells, when functionally disrupted using RNA interference (RNAi). It is known from previous studies that activation of the JAK/STAT signaling pathway can cause hyperproliferation of blood cells in Drosophila, and even tumors. In the case of the RNAi phenotypes, one possibility is that RNAi causes the inappropriate activation of JAK/STAT signaling that, in turn, is responsible for the observed proliferative effects. Here we describe the use of the 10XSTAT-GFP reporter, which expresses GFP upon increased STAT activity, to examine JAK/STAT signaling in the context of the various RNAi phenotypes, with data presented for both circulating cells and the lymph gland.

Latin American Women Writers: 40 in their 40's

Emil Sol

In the Spring semester of 2021, I had the opportunity to take Dr. Alicia Partnoy’s Latin American Women Writers course which emphasized the works of female authors and poets through an analysis of their storytelling using personal narratives or poetry. I had the honor of participating in a class-wide collaborative project titled “40 in their 40’s” designed to highlight and celebrate the works of female poets from Latin America and the United States who also happen to be in their 40’s.

The interactive nature of the semester-long project allowed those of us in the class to fully immerse ourselves in the works of our poets by researching them, learning about their accomplishments, and ultimately translating one of their poems to either English or Spanish. As a class, we later hosted four Zoom webinars open to the LMU community in which we invited our featured poets to appear on a panel facilitated by students in the class and share their stories with those in attendance.

As a first-generation Salvadoran-American, I felt a special connection with the project because I was able to work with, identify with, and translate Salvadoran-American poet Leticia Linares Hernandez’s poem “Tragedilandia.” This project has brought inspiration to my career as an aspiring educator in that I plan on continuing to highlight the works of the different poets from the project by implementing them into my lesson plans and sharing their poetry with my future students in high school Spanish classes.

Life Inside Juvenile Detention: The Impact of Educational, Rehabilitative, & Trauma-focused program

Mirian Melendez

Incarcerated youth encounter a myriad of experiences while inside juvenile detention facilities that are detrimental to their development and wellbeing. A sociological analysis of the experiences within these institutions brings about an awareness of how confinement socializes vulnerable youth and shapes their lives. The aim of this study was to view juvenile detention from the perspective of young people to understand whether facilities provide them with the necessary skills, resources, and services to transform their mental health and behavior to prepare them for re-entry. I conducted a content analysis on a systematic sample of YouTube videos that illustrated the experiences of youth from the ages of 14-20 within juvenile facilities. The author used the following phrases to search for her data: ‘incarcerated youth,’ ‘juvenile detention,’ ‘inside juvenile detention,’ ‘juvenile system,’ ‘detention education program,’ ‘juvenile detention rehabilitation program,’ ‘youth in prison.’ The youtube videos served as secondary interview data to represent the narratives of youth who detail their experiences within juvenile facilities and the various programs and services they have access to. Rehabilitation, education, and mentorship are demonstrated to be pivotal factors in transforming youths’ lives and trajectories moving forward. Ultimately, my analyses show that punitive forces within juvenile facilities victimize youth and create unsafe environments, which produces continued cycles of limited psychosocial development and recidivism. It is essential that
juvenile facilities and placements are actively reforming their institutions to offer alternatives for incarcerated youth during their incarceration process and ensuring they have the tools to transition.

**Lifting As We Climb: Black Women’s Activism and Generational Legacies**  
*Malia Thornton*

Black women are the backbone of socio-political movements for racial justice and human rights. However, popular recollections of the Civil Rights Movement, the Black Power Movement and the portrayal of the contemporary Black Lives Matter movement fail to illuminate this fact. The roles and actions of many Black female activists have been systematically excluded from our knowledge of several of the most pivotal moments of civil and human rights activism in the United States. Even today, Black women actively fighting for dignity and justice within their community may continue to experience the erasure and marginalization that their ancestors felt before them. In this study, I ask how race, gender, and class differences impacted how and what Black women contributed to the Civil Rights and Black Power Movements. Additionally, I aim to evaluate if Black women activists today face a similar erasure and marginalization as the women before them. If so, to what extent. To answer these questions, I conduct 20 in-depth interviews with activists ages 18-39, 40-61, and those ages 62+. These open-ended interviews demonstrate how salient race, gender, and class remain in activist work and how they affect the actions, opinions, and lives of Black women. Black socio-political movements cannot expect to find success until all members of their community are empowered. By centering the voices of female activists, this paper aims to facilitate the inclusivity needed to highlight the experiences of Black women.

**Making the Invisible Visible: A Representation of Queer Lesbian IPV**  
*Camila Rivera*

In Carmen Maria Machado’s memoir, *In the Dream House*, she confronts her traumatic memories of intimate partner violence (IPV) in a lesbian relationship. With the discourse on LGBTQ IPV only beginning in the 1980s, there are minimal cultural representations that validated her experience with IPV as a queer woman. In this literary analysis essay of Machado’s memoir, I based my research on the discursive formation of IPV and the battered woman syndrome. My research is also rooted in concepts developed by significant Chicana-Latina feminist writers, including geographies-of-selves, autohistoria-teoría, sin verguenza, etc. I found that IPV has been historically represented as a unitary experience of heterosexual couples, in which men are the perpetrators of the violence and women are the victims. This has marginalized and erased the LGBTQ community’s encounters with IPV and their knowledge of its existence. In addition, I found that Chicana-Feminist writers called for a method of theorizing that interrogates socio-political issues in a way that is more personal and empathetic to the lived experiences of people of color, specifically, queer women-of-color. I argue that Machado’s memoir is also a site of theorizing, where she transforms her lived-body experience with IPV, alongside a critical analysis of film history, fairy tales, old songs, and queer history, into a creative piece that challenges the boundaries of the dominant discourse on IPV. Her memoir speaks to and creates emancipatory potential for future generations of queer and lesbian women by making their presence more visible within the discourse on IPV.

**Measure Up**  
*Mei Vilanova*

My exhibition will be poster based both, in the walls and floor, and it will begin at the entrance of the gallery all the way to the little area were the rest of the installation will be situated. The topic I will be representing is the struggle of the female athlete and the path these take to become part of the 1% (elite). It will be titled “Measure Up” and it will be in the form of a track path on the floor that one can follow, which will present the different challenges women encounter in the world of sports, and end in the finish line there will be the exhibition that will honor and empower past and present female athletes while using the public to symbolize the future (you are the future). My mentors are professor Garland Patrick and Samir Naimi and I will be presenting this project alone.
Microhabitat Preferences of Nesting Marsh Birds in the Ballona Freshwater Wetlands

Harrison Detroy

The goal of this study is to investigate the microhabitat preferences of marsh nesting birds in the Ballona Freshwater Wetlands. This portion of the wetlands was restored in 2003 and is one of the last remaining freshwater wetlands up the coast of California. This four-year project started during summer 2018 and seeks to quantify various aspects of vegetation and habitat characteristics directly associated with marsh bird nests. These microhabitat characteristics recorded include: vegetation type, vegetation height, water depth, reed density, horizontal cover, extent of reed collapse, and extent of dead vegetation. Our species of focus include the American Coot, Red-winged Blackbird, Pied-billed Grebe, Least Bittern, Great-tailed Grackle, Marsh Wren, and Common Yellowthroat. Throughout the summer nesting season, we located all bird nests in the marsh and, via canoe, recorded each nest's microhabitat and GPS location. Our results show that marsh birds prefer tule bulrush and cattail vegetation, low to medium reed density, low amounts of reed collapse and dead vegetation, and water depth between 0.1 and 1 meter. Ultimately, these habitat preferences give new insight into future management decisions at the Ballona Freshwater Wetlands, and deeper knowledge on the marsh birds that use this ecosystem.

Migration to Massacre, Deportation to Death: The Guatemalan History of Displacement

Vanessa Maldonado

The goal of this study is to investigate the microhabitat preferences of marsh nesting birds in the Ballona Freshwater Wetlands. This portion of the wetlands was restored in 2003 and is one of the last remaining freshwater wetlands up the coast of California. This four-year project started during summer 2018 and seeks to quantify various aspects of vegetation and habitat characteristics directly associated with marsh bird nests. These microhabitat characteristics recorded include: vegetation type, vegetation height, water depth, reed density, horizontal cover, extent of reed collapse, and extent of dead vegetation. Our species of focus include the American Coot, Red-winged Blackbird, Pied-billed Grebe, Least Bittern, Great-tailed Grackle, Marsh Wren, and Common Yellowthroat. Throughout the summer nesting season, we located all bird nests in the marsh and, via canoe, recorded each nest's microhabitat and GPS location. Our results show that marsh birds prefer tule bulrush and cattail vegetation, low to medium reed density, low amounts of reed collapse and dead vegetation, and water depth between 0.1 and 1 meter. Ultimately, these habitat preferences give new insight into future management decisions at the Ballona Freshwater Wetlands, and deeper knowledge on the marsh birds that use this ecosystem.

Molecular Dynamics of Psychedelics

Nicholas Ashby

Psychedelics have a long history in traditional medicine and are even consumed for religious purposes to promote physical and mental health. In terms of a physics standpoint, is to explore the molecular dynamics of these drugs when attached to a serotonin receptor. The four psychedelics that will be analyzed are dimethyltryptamine (DMT), psilocybin, lysergic acid diethylamide (LSD), MDMA. The significance of this project is to prepare a literature review to look for the important theories and methods applied, and it seeks to point out where that research is lacking or could be improved upon. The methods of this project are to identify the drugs and their chemical characteristics. Then, to highlight the research field of molecular dynamics and the significance of how these drugs interact when bound to a receptor. The results show that there are beginnings of research on these drugs for medical purposes to cure various mental diseases. However, there are still many roadblocks through government agencies to continue the research or expand in various areas.

More Twitter, Less CNN

Madison Dailey

While conspiracy theories have consistently been present in our society, the ability to easily spread and share this misinformation has been perpetuated by the ease of communication via social media. In combination, Gen Z, a group of “digital natives” with few memories of life before the internet, are the first generation to become college students and
voters who increasingly, and sometimes exclusively, gather their news about current events from social media. In this study, I question how social media use by college students impacts their political engagement? More specifically, how is social media use related to higher levels of belief in conspiracy theories and likely to foster belief in misinformation? Also, what traits in college students are associated with believing misinformation and conspiracy theories? Based on a Mechanical Turk survey of 500 college students, I will be able to explain the extent of social media's effect on college students’ political engagement and understanding of current events. This study contributes to existing literature about social media use and misinformation while opening new debates on the role of Gen Z college students in perpetuating and spreading belief in misinformation on social media.

Multiple Stressors Interact to Influence the Metabolic Rate of the Mussel Mytilus Galloprovincialis
Clare Houston, Claribel Alcantar

Climate change is predicted to influence seawater temperature and increase precipitation events that will alter salinity. These changes may influence the species range and survival of the invasive mussel Mytilus galloprovincialis, which can withstand warm water temperatures but is vulnerable to changes in seawater salinity. However, we do not know how multiple abiotic stressors affect the physiological performance of M. galloprovincialis. The purpose of this study was to examine the effects of multiple stressors on the metabolic rate of M. galloprovincialis. Mussels were collected from Marina del Rey, CA and acclimated to control conditions (17°C, 34 ppt) prior to experimentation. Mussels (N = 24 per treatment) were exposed to full factorial combinations of temperatures (17, 20, 25°C) and salinity (20, 28, 34 ppt). We used a closed system respirometer to determine metabolic rate (mg O2 \( \text{litre}^{-1} \text{min}^{-1} \text{x g wet weight}^{-1} \)). We found a 1.8-fold increase in metabolic rate due to elevated temperature (25°C). Hyposalinity exposure (20 ppt) showed a significant increase in metabolic rate while mild hyposalinity (28 ppt) and control (34 ppt) salinities showed similar metabolic rates. The greatest degree of synergy was observed under the most stressful treatment combination (25°C, 20 ppt) where metabolic rate was 2.25-fold greater than that observed under control conditions. Interestingly, an antagonistic effect was observed in mussels exposed to both 25°C and 28 ppt where the metabolic rate was less than expected. Thus, our study suggests that mussels experiencing elevated temperature and moderate hyposalinity may be more vulnerable toward climate change stressors.

Native Plant ‘Zines’ to Promote Ecological Restoration at Ascot Hills Park
Sabriya Seid

Local awareness of native plants is a crucial component of ecological restoration. Art, in particular, can create awareness of and help an audience connect with the natural world. Promoting a connection can support a desire to learn about nature and encourage action to protect it. ‘Zines’ (short for magazines) are small-circulation, locally-published collections of art and text that are commonly used to communicate among individuals with shared ideas and interests, particularly for groups who have historically lacked access to large media outlets. In collaboration with a local, environmental non-profit, we demonstrate how a zine-styled field manual can be used to promote knowledge and the protection of native plants. Our field manual contains illustrations of the common native plants found at Ascot Hills Park, a recently established, open nature space in historically underserved and marginalized East Los Angeles. Recognition of native plants from the local community will assist in the ongoing and volunteer-driven restoration of the park’s 93 acres. We will create four separate zines respective to the Park’s four distinct zones, which all contain unique flora. The aim of these zines is to increase local interest in native plants at Ascot Hills Park and encourage broader participation in ecological restoration in East Los Angeles.

Neoliberalism and Reggaetón: How Neoliberalism Affects Cultural Artistic Expression
Amber Rivera

My research examines how neoliberalism enables white supremacy through the treatment of reggaetón. The contents of this study will begin with defining neoliberalism, its effects on art, and then its effect on reggaetón specifically. My hypothesis is that neoliberalism conflates success with profitability and prioritizes a white audience; this is detrimental to
reggaetón unless it compromises its identity and inherent cultural origins to market to this audience. To support this, I will follow its origins as a criminalized, underground genre to its position today as a global commercial success. The timeline shows a shift towards mainstream acceptance, so the main question to be answered is how that change happened. In finding that answer, there is an emphasis on two factors: the performers and the audience. An analysis on awards will show any discrepancies in those receiving these awards (Afro-Latinx vs. non-Afro-Latinx performers), and in some cases, awards meant for Afro-Latinx given to non-Afro-Latinx. Additionally, commentary from past interviews by performers will provide insight into their perception of the genre and their intentions. For analyzing the audience’s demographics and impact, I will be looking at album sales, radio plays/billboard listings, and online streams to document the genre's globalization and audience shift. The results show a correlation between the glamorization of non-Afro-Latinx performers and the presence of a wider/whiter audience. This provides evidence that artists need to appeal to a white audience to be recognized and accepted as mainstream, which prioritizes them and therefore upholds white supremacy.

New Databases and Export Features for GRNsight: a Web Application for Visualizing Models of GRNs

Ona Igbinedion

GRNsight is an open source web application and service for visualizing models of gene regulatory networks (GRNs). A gene regulatory network consists of genes, transcription factors, and the regulatory connections between them which govern the level of expression of mRNA and protein from genes. GRNmap is a MATLAB program that performs parameter estimation and forward simulation of a differential equations model of a GRN based on user-provided expression data. A limitation for GRNmap is the manual creation of input Excel workbooks which is time-consuming and can be error-prone. GRNsight reads these input and output workbooks from GRNmap and automatically displays the model data as a graph with colored nodes and edges. We have updated the existing back-end GRNsight database to be compatible with other species in addition to Saccharomyces cerevisiae. We cleaned up the database schema and added appropriate types to the export feature, this will allow users to fully automate and validate the creation of GRNmap input workbooks, speeding up the rate of research. GRNsight is available at http://dondi.github.io/GRNsight.

Newtonian Fractional-Dimension Gravity and Galactic Rotation Curves for NGC 5055

Shane Murray

This research continues previous work on an alternative model of gravity, based on the theory of fractional-dimension calculus applied to Newton’s law of gravity. In particular, Newtonian Fractional-Dimension Gravity (NFDG) is now applied to axially symmetric structures, such as thin/thick disk galaxies. As in the case of spherically symmetric structures, which was studied in previous work on the subject, we examine a possible connection between the NFDG model and Modified Newtonian Dynamics (MOND), a leading alternative gravity model, which accounts for the observed properties of galaxies and other astrophysical structures without dark matter being a necessity. By relating the MOND acceleration constant of $1.2 \times 10^{-10}$ m/s² to a natural scale length Λ for a galaxy of mass $M$, and by using the empirical Radial Acceleration Relation (RAR), we can explain the connection between the observed radial acceleration, gobs, and the baryonic radial acceleration, gbar, in terms of a variable fractional dimension D. As an example of this methodology, I will provide a detailed rotation curve fitting for the case of the spiral galaxy NGC 5055.

NFT—New Feminists' Territory

Yilin Wang

Since cryptocurrency will potentially be the future of finance, it is important for women to learn more about cryptocurrency to elevate women’s status in the financial world. I believe that the introduction of NFT (Non-Fungible Token) art is a great way to get women involved in the world of blockchain and cryptocurrency.
Non-Pharmacological Interventions for Chronic Pain in Emerging Adults: A Systematic Review
Sofia Cabrera, Gabriela Barba, Luciana Hernandez, Sandra Kechichian

Whereas many non-pharmacological treatments have been shown to be effective in adults and children with chronic pain, little is known about such treatments in emerging adults, who may represent a distinct stage of development. This systematic review identified studies on non-pharmacological treatments for chronic pain in emerging adults, rated their quality, and summarized findings. Using PRISMA guidelines (Page et al., 2021), studies that met these criteria were identified: included young/emerging adults (18-25 years) with chronic pain as the primary population or a subgroup that was analyzed separately, received any non-pharmacological intervention for chronic pain, clinical study of any design, included any pain measurement and/or any pain-related outcomes. Electronic searches were conducted using the following databases: Cochrane Central Register of Controlled Trials, Google Scholar, Proquest, PsycINFO, PubMed, and Web of Science. References for dissertations and systematic reviews were also examined. JBI checklists were used to evaluate the quality of the studies. Five studies (N=114) meeting our criteria were identified: hand self-shiatsu, simulated horseback riding, acceptance and commitment therapy, and two on yoga. There was large methodological variability across the studies, precluding meta-analysis. Overall, studies evidenced an improvement in quality of life in individuals experiencing chronic pain through reductions in pain, pain interference, pain indicators, pain anxiety, and fear avoidance. Our review revealed a large gap in the literature and is a call-to-action for more studies aimed at investigating the effectiveness of evidence-based treatments for chronic pain in emerging adults supporting their unique needs and motivations for independence and self-efficacy.

Numerical Modeling of Dynamo Systems using MagIC
Andrew Bruneel

Dynamos are the internal engines that generate magnetic fields. Because of this, they have recently become one of the most popular topics of interest in the field of space physics. By learning more about dynamos, we can understand how planetary magnetic fields will evolve over time. Using this information can also aid us in the search for habitable environments across the solar system and the universe. Despite the importance of learning about dynamos, it is difficult to simulate environments where we can study the physics that occurs in planetary cores. To solve this issue, numerical models are run in tandem with laboratory experiments so that we may compare the results afterwards. By overlapping our studies, we can maximize what we are able to learn. We present the results of new numerical modeling efforts to explore details of the fluid physics involved in generating a global scale magnetic field from electrically conducting, rotating, convection using the open-source computational fluid dynamics code MagIC.

Optimization of a Magnetohydrodynamic Pump
Angel Ruiz

Magnetohydrodynamics (MHD) is a branch of physics that focuses on the movement of electrically conducting fluid through a magnetic field. Within this physics field, a new application has emerged to provide an alternative method to move fluid other than the standard mechanical pump with moving parts. According to the magnetic Lorentz force equation, an induced electrical current within a fluid and an external perpendicular magnetic field will produce a force that will push, and thus move, the fluid. We present initial experimental results of a newly constructed experiment designed to optimize the described MHD pump. Within these experiments, fluid flow is characterized by tracking dye injected into conducting salt water.

Pandemic Syndrome
Talya Bandary

Student life has been adversely affected by the closure of the U.S. educational system during the COVID-19 pandemic beyond just classrooms, friends, and extracurricular activities. As a result, an estimated 55 million children and teenagers lack access to the support they need to navigate adolescence and cope with trauma. It is no secret that mental health problems have become more prevalent in 2020, especially for young adults and teens. The psychological effects of the
pandemic will likely affect a generation that already suffers from a growing number of depression disorders, anxiety disorders, and suicides. A key component of achieving healthy mental health for adolescents and young adults is building resilience. Resilience is an essential component of human strength because it allows people to cope with hardships and overcome them. A lack of mental acuity can result in people rapidly becoming overwhelmed and turning to unhealthy coping mechanisms. The confidence and support of resilient peers allow them to overcome challenges and work through their issues.

**Park Equity in Los Angeles County**

*Ashley McCluskey*

Parks are an essential part of a community, especially for children who need the socialization, mental stimulation, and physical activity that parks provide, for healthy development. Previous studies have identified disparities in park equity between white dominant communities and Latino dominant or African American dominant communities, as well as disparities in park equity between affluent communities and underserved communities. These disparities are rooted in historical redlining practices, which excluded people of color from homeownership in suburban communities that feature quality parks and green spaces. In order to bring attention to and explore park equity in Los Angeles County today, I will focus my research on the questions: Is there a correlation between racial groups, household income, and access to parks in LA County? And do children who go to school in underserved communities within LA County have the same access to parks as children in LA County who do not go to school in underserved communities? For the purposes of research I will be defining park access as proximity to parks. I will use geospatial analysis as my primary research method, and will create maps focused on demographics such as race and income, as well as proximity of schools to parks. In addition I will draw upon outside academic sources to support and build upon my findings. I aim to spread awareness on the issue of park equity in LA County, and stress the importance of policy that engage underserved community members and their needs.

**Perception of financial stability**

*Sophia Flores*

Economic shocks and uncertainties compel people to think about their money management practices and their feeling of financial stability, this past year was no different. This analysis is concerned with the critical question of whether these impacts are felt differently by various races. Black and Latino/a communities may be particularly vulnerable to negative economic shocks because of their insufficient savings and wealth, contributing to our country's long-term racial inequity. StudyLA conducted a survey in 2021 that included questions about the ongoing coronavirus pandemic and its economic impact on individuals, remote work, school reopenings, vaccines, systemic racism, homelessness, and arts and culture. The survey included interviews with 2,003 adult Los Angeles County residents via telephone, online, and in-person (respectively, n=845; 911; 247). I concentrate on the question that asks residents to rate their personal financial situation on a four-point scale: excellent, good, only fair, and poor. Overall results show that 9% of respondents assessed their personal financial status as excellent, 40% as good, 38% as only fair, and 13% as poor. Disaggregating these figures by race/ethnicity, Black, Asian, and Latino/a respondents are far less likely to think their financial position is excellent compared to whites. These same minority groups had the highest number of those who viewed their financial status as only fair. Economic shocks affect everyone, but their intensity varies significantly, as evidenced by the very diverse sense of financial stability held by white, Black, Asian, and Latino/a individuals.

**Perception of personal finances between racial and ethnic groups**

*Sophia Flores*

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**Policy, Press, and Public Opinion: An Exploration of Attitudes towards Syrian Refugees**
Sabine Caplin

In late 2010 anti-government protests and rebellions, known as the Arab Spring, occurred across the Middle East and North Africa, beginning a trend of war, regional violence and instability causing many to flee. In the case of Syria, the flow of refugees to host countries has resulted in alarming population growth and insufficient resources to accommodate the need. More importantly, the framing of information in media and policy can result in negative perceptions that influence the treatment of refugees in host countries. This case study will evaluate the critical influence of economic, religious, and security-based refugee policies from three host nations on news media content about, and therefore, public opinion of Syrian refugees. A comprehensive literature review of attitudes towards refugees will determine how public opinion can be measured through media coverage. Content analysis of policy statements and news media regarding Syrian refugees will be conducted on sources from Turkey, Lebanon, and Germany to delineate positive and negative frames in policy statements, and how they are reflected in media sources. This study will show how policy framing is reflected in news media and interrelated to public attitudes towards refugees. This analysis is a novel contribution to the existing literature as it analyzes attitudes towards refugees through a critical lens, exploring the combined relevance of policy and media frame public attitudes.

**Political Party Affiliation of Cuban-Americans**
Emily Pita

While Cuban-Americans do break the standard mold for Latinx political party affiliation to say the group is a monolith is incorrect as the group has been influenced by generational and cohort differences. Exile politics has guided the political party affiliations of Cuban Americans, therefore their political incorporations as it influences how they become politically involved. It is especially prevalent when discussing the 2020 presidential election as it was believed that Cuban-Americans would flip however, the group remained GOP aligning, growing their GOP alignment. For Cuban-Americans, their political party affiliation is guided by it as the conditions in which they left Cuba, has large implications on how they register. Cohort differences are also implied through this as the literature has indicated that the time in which the Cuban Refugee immigrated to the United States implies their political party incorporation. Political incorporation is described as how immigrants and refugees become involved politically in their new home. Exile politics is truly connected political incorporation and leads to how Cuban-Americans politically affiliate. While many believed that Cuban-Americans would finally switch to voting Democrat in 2020 this was not the case, primarily due to rhetoric used by the GOP, thus showing that exile politics is still currently at play in modern Cuban-American political party ideology. The research has been done by evaluating current election and party affiliation data as well as combining the literature on waves of Cuban migration, exile politics, political incorporation, and the 2020 election.

**Political Polarization on TikTok: An Experimental Investigation of the Effects of TikTok's Algorithm**
Breanna Velasco

Political polarization has become a rising concern in the U.S. over the past few decades and many argue that social media plays a key role. Social media has become an increasingly popularized form of communication, especially among youth and young adults. TikTok was the most downloaded app worldwide in 2020. This study examines TikTok's recommendation
algorithm to assess echo chambers on both sides of the political spectrum. Additionally, this study asks whether a
disruption in echo chambers on TikTok increases negative attitudes towards opposing political parties and/or strengthens
one’s existing political ideology. To address this topic, data from Amazon’s Mechanical Turk will be used to survey 500
respondents. In the survey, the participants’ TikTok “For You” feed is experimentally manipulated to engage with left-
leaning or right-leaning videos respectively and tests whether exposure to different ideological content reinforces or
polarizes political attitudes. The anticipated result of this study is that exposure to TikToks opposing one’s political
ideology increases negative attitudes toward that party and strengthens one’s existing political ideology.

**Power in Play: An Analysis of Hierarchies in Gaming Communities**  
*Kyla Yein, Cobe Alvarez*

With the rise in popularity of massively multiplayer online games (MMOs), there has been an increase in casual gamers
looking to pass time and to stay in touch with friends. This research will investigate resulting “communities of play,”
defined by the author of Communities of Play, Celia Pearce as “a group of individuals who engage in a process of collective
learning and maintain a common identity defined by a shared domain of interest or activity” and the interactions among
players. In MMOs and MMORPGs, teamwork is necessary to complete in-game objectives, but the risk of failure is
increased when there are clear skill differences among the players. As more casual gamers seek to have fun with others in
a community, hardcore gamers may feel as if they are being hindered by such casual players, and the risk of failure
increases. Power in Play explores why hardcore gamers who deal with failure externally turn to harassment based on
gender, sexuality, and/or race when playing MMOs and MMORPGs. Due to the high-stakes nature of their play, hardcore
gamers who feel threatened by failure and the loss of rewards can deal with the blame externally, such as blaming their
fellow teammate. Moreover, the anonymous nature of these games provides a way for players to hide behind a gamer tag
or avatar. In light of our research, we hope readers can achieve a deeper understanding of gaming culture and
“communities of play” and how they shape the future of massively multiplayer online games.

**Prevention of the Aggregation of Human Islet Amyloid Polypeptide**  
*Khushi Singh, Lianlen Joy Distor, Sarah Lu, Aaliyah Tyson, Joy Lee, Lauren Phillips, Philippe LeGuellec*

The aggregation of the 37-amino acid polypeptide human Islet Amyloid Polypeptide (hIAPP, amylin), as either insoluble
amyloid or as small oligomers, appears to play a direct role in the death of pancreatic β-islet cells in type 2 diabetes. While
hIAPP is the primary component of type 2 diabetes amyloid, the molecular interactions responsible for this aggregation
are not well understood. hIAPP is found as extracellular deposits of amyloid in approximately 90% of patients afflicted
with type 2 diabetes. hIAPP has also been shown to be a toxic agent in vitro when added to mammalian cells. While it
remains unclear how self-assembly of hIAPP leads to the development of disease, recent studies have suggested that the
formation of lower order protein aggregates (two to ten self-assembled proteins) leads to cellular toxicity and ultimately
to the progression of disease. Preventing the formation of these toxic oligomeric species may slow, if not prevent entirely,
the progression of type 2 diabetes. Here we describe a series of naturally occurring peptides that we have recently
identified that are capable of inhibiting hIAPP aggregation and rescuing mammalian cells from toxic hIAPP.

**Queer Gender and Sexuality Versus Traditional Systems of Power in Popular Anime Series**  
*Bettina Ernst, Jennifer Valentine*

Since its emergence in the late 20th century, anime, or Japanese animation, has grown in increasing global popularity, with
strong ties to consumerism and fan culture. Our work integrates television studies, animation studies, anime studies, and
queer studies as a lens with which to examine the popular television series, Ouran High School Host Club. Using existing
literature on Japanese culture, particularly the club and educational system, as well as queer concepts such as Camp and
queer temporality, we offer a close textual analysis of several episodes of Ouran High School Host Club. Additional lenses
include evaluation of the formal elements of animation and common anime motifs. Our paper examines how the host club
space constructs queerness by obscuring heterosexuality and gender conformance through costume and a play with
sensuality and eroticism. By focusing on sequences where outside characters, who conform to the traditional power
structures, interact with the queer space of the host club, we observe how the club either transforms or defeats these characters. We also note how the characters use the host club space to help others, and themselves, resist the pressures to grow up and integrate into more rigid cultural structures such as the work force and class system. Through our examination of the conflict between queerness and the systems of power in Ouran High School Host Club, we indicate further questions for analysing other anime works.

**Queer Hauntology**

*Harrison Hamm*

In recent years, “queer hauntology” has become an academic buzzword within multiple fields, spanning queer theory, philosophy, Gothic studies, cultural studies, and even music and film theory. Although most scholars cite Jacques Derrida for conceptualizing “hauntology,” “queer hauntology” often names disparate ideas, varied by the context of its application. In turn, few scholars agree on a consistent definition for “queer hauntology,” despite its increasing usage. Hence, this research project traces the term’s academic lineage across disciplines with particular attention to the role of “queer hauntology” in queer theory scholarship. By tracking the academic development of this term in major queer theory texts, cultural studies literature, and philosophy works, this research project contributes an historical account and definition of “queer hauntology,” which was not previously available. I introduce these ideas, accounts, and definition through a keyword essay. To more fully investigate queer hauntology, this essay makes use of both first-person narrative and media applications in addition to published scholarship. My essay considers “queer hauntology” as a logical development from Derrida’s original coining of “hauntology.” I argue that “queer hauntology” effectively queers “hauntology” by not only identifying the ways in which the pasts’ failed phenomenon haunt the temporal and affective present, but also by taking these “ghosts” in stride to inspire alternate, generative, and radical queer politics. Under late-stage capitalism’s neoliberal gay politics, understanding queer hauntology offers new possibilities for queer futures.

**Queer Performativity in Social Media**

*Elisabeth Lewis*

Research has increasingly shown that social media offers a space for people to engage in crucial aspects of identity development and community building. As our culture becomes more reliant on media, understanding the use of social media in identity formation for individuals in marginalized groups becomes more important. Understanding the mechanisms through which queer people navigate the development and presentation of identity, specifically on social media, can offer critical insight into challenging normative structures and hegemony in a media-saturated culture. In this research project, I reviewed literature on identity, identity-development, and queer performativity to better understand social media as a mechanism for these concepts. I then analyzed social media content to understand the performativie acts queer individuals partake in to develop and assert queer identities on social media. My findings offer insight into the crucial connection between queer identity development, performativity, and social media. I offer a perspective on non-essentialist ideas of identity, the political and survival function of performativity, and the function of social media - particularly the unique function of the social media platform Tik Tok - in queer survival, identity development, and community building. The findings of my social media analysis identify specific performativities used by queer users on social media to engage in identity development and assertion.

**Radial Saltwater Convection to Quantify Oceanic Flow of Rotating Bodies**

*Nathan Washecheck*

The Icy moons Europa and Enceladus both contain global subsurface salt water oceans with surfaces primarily covered in ice. Because these moons contain liquid water, they become prime subjects in the search for life in our solar system. In order to simulate the subsurface ocean environments of Europa and Enceladus, a rotating apparatus with a horizontal temperature gradient will be used to produce radial convection. The heat transfer and fluid velocities generated by the fluid convection will be examined in order to better constrain the potential for Europa and Enceladus to produce life supporting regions. Results from particle image velocimetry and thermometry measurements that characterize rotating convective fluid experiments will be discussed.
Reconsidering Mandated Reporting in Educational Institutions
Catherine Kennedy, Cristina Pedler, Natalie Robinson

The goal of mandated reporting is to aid those struggling with physical abuse, psychosocial abuse, and mental health crises. In reality, mandated reporting is not consistently an effective system, as a report published by The Journal of Family Violence indicates that “over a third of survivors [...] did not turn to a potential support for fear related to [mandated reporting]” (Lippy et al., 2019, p. 264). Thus, it is evident that the current system and consequences of mandated reporting serve to dissuade students from seeking resources. The existing system of mandated reporting afflicts the reporters, too. Transversely to students, mandated reporting burdens teachers who may be inadequately trained in identifying emergencies. Furthermore, the aforementioned issues compound; there are often cases of overreporting that overload already overworked administrative systems, rendering them unable to adequately address survivor needs (St. John, 2013). Therefore, in its current form, mandated reporting has the potential to detrimentally impact both victims and reporters. The present paper uses systems theory to identify the causes of the issues surrounding mandated reporting as they result from the present structures within our current healthcare system. Then, our focus shifts towards mindful solutions centered around survivor autonomy, student safety, and benefitting the interconnected administrative systems enacted to serve their needs.

"Red and White, Blue Suede Shoes": How Contemporary Music Influences Political Behavior in the U.S.
Jordan White

Throughout the last century, politically charged music has regularly accompanied social and political movements. But musical preferences are regularly changing as Hip-Hop has overaken rock as today's most popular music. Since the early 2000s, scholars, and critics have had difficulty identifying the impact of political music on events such as the 2008 economic downturn, Trump's presidency, and COVID-19. There is a lack of literature on the current effects music has on political behavior. Due to recent shifts in the availability of music, technology, and political views, a new examination is necessary. This research will evaluate the political influences that today’s popular music exerts over citizens. To address the intersection of music and political behavior, I will conduct an experimental survey of 500 participants on Mechanical Turk. The survey will gather respondents’ music consumption habits and preferences, as well as political behavior. An assessment of the responses will discern if there is a causal link between types of music, musical genres, musical artists, and peoples’ political behavior. The study allows us to assess the claims of scholars that music is an essential source of political influence.

Reframing Body Horror and the Othered Body
Cobe Alvarez

The Horror genre has historically been used as a way to examine the fears and anxieties people communities face at certain points of history. This research will investigate such fears and anxieties within the specific subgenre, known as 'body horror'. Both thematically and aesthetically, body horror in film and media presents bodies as dirty or othered, which may create a sense of anxiety or fear about the othered body, and possibly their own body. Through this project, I seek to explore the history of how the body has been presented as horrific, dirty, or othered in both media and through philosophies of the body. Through historical and philosophical lenses, I will examine how the subgenre has been used to reinforce certain expectations about the body, such as the expectation to present a gendered body, or a body absent of filth, smell, or any other signifier of dirtiness. While the subgenre has largely historically upheld these expectations of how one must present their body, reexamining the genre from a theoretical perspective might allow it to instead act as a medium for creating empathy for the dirty or othered body. In media, presenting a figure as empathetic or relatable calls on the audience to understand that figure's emotions or position. Through using the perspective of the othered/dirty body, the subgenre can be reimagined as a way to create empathy for the other, while critiquing sociocultural expectations of the body.
Refugee Health in the United States

Annie Heckman

In the year 2021, more than 11,000 refugees were resettled within the United States. Upon arrival, refugees encounter a variety of challenges within their resettlement process. One notable challenge is the adjustment to the United States system of healthcare. Much of the current literature cites the language barrier as the primary source of these challenges. However, less is known about the influence of culture on the way that refugees navigate the United States healthcare system. In a previous study, I conducted five in-depth, qualitative interviews with refugees who were resettled in Denver, Colorado. While the participants hailed from a variety of countries around the world, I found several common themes surrounding conceptualizations and experiences of health and healthcare. These themes included an understanding of health as holistic to include both mental and physical health, an emphasis on the importance of community in maintaining health, and both positive and negative experiences with the US healthcare system. While this research offered insight into cultural conceptualizations of health, it was limited to five participants. To gain a more comprehensive understanding of healthcare and the refugee resettlement process, I interviewed additional refugees, staff at a refugee resettlement agency, and physicians who see refugees for medical care. My paper will present key findings from these interviews and integrate these findings with the results of my previous research. These integrated findings will contribute to the current literature surrounding refugee resettlement, especially the best practices for introducing refugees to the United States healthcare system.

Rehabilitation and Resetting: Resources for Dancers from Physical Therapists

Kennedy Schuelke

The injury rate for dancers is similar to that of professional football players. Dancers are asked to push their bodies in extreme ways, yet studies show young dancers in particular rarely learn to care for their bodies to ensure longevity. For my senior thesis, I created a website where dancers can learn how to take care of their bodies and minimize risk of injury. I interviewed physical therapists from across the US who specialize in dance. One works for a well-known professional company, three work for outpatient clinics, and one works at a clinic that offers sliding scale fees for dancers. I sent each interviewee questions and recorded each interview one-on-one via Zoom. These interviews were then edited and uploaded to my website in a section dedicated to advice and resources for dancers. Each video includes the PT’s advice for dancers on how to take care of their bodies, along with an interactive exercise that they find beneficial for dancers in injury prevention and healing. As a dancer myself, I know how needed this information is and how important exercises are to ensure health in this profession. My next step is to share this resource with the dance department at LMU, with peers that attend other programs, and with dance studios in the surrounding areas. After graduation, I will continue to conduct more interviews and post them. Once I complete PT school, my goal is to start an education program for younger dancers that promotes healthy care for their bodies.

Relationship Between Flammability and Leaf Functional Traits of Native and Non-native Plants

Species

Eric Scharberg

The spread of non-native plants into an established ecosystem has vast effects on both the ecosystem's plant composition and fire regime, the long-term fire pattern characteristic of an ecosystem. Plants found in a certain ecosystem have evolved to benefit from that ecosystem's fire regime through multiple factors, one being flammability or the potential for a leaf to combust. The measurement that can be utilized to analyze the flammability of leaves is its ignition delay time. The questions to be addressed in this study are how the flammability of native and non-native plants differs and is there a correlation between leaf functional traits and average ignition delay times? Prior to testing, it is expected that non-native plants will have higher flammability since they are not evolutionarily accustomed to the ecosystem's fire regime. The six leaf functional traits measured include leaf area, width, length, thickness, specific leaf area, and water leaf content (%). The project study site is Ascot Hills Park, which is characterized as a Coastal Sage Scrub ecosystem. Native and non-native
***Relationship Between Performance on Flanker Test & Theta EEG PSD Differentials During Resting State***

*Sandra Kechichian*

A goal of cognitive neuroscience is to understand how cognitive representations are reflected in neural representations. Several measures of the brain at rest (resting-state) predict performance during cognitive tasks, including electroencephalography (EEG) differentials which measure the difference in electrical potential between brain areas. Resting State Theta (RS\(\theta\)) is an EEG brain pattern (4-8 Hz) associated with restful awareness that has been linked to individual differences in anxiety and personality but has not yet been reliably linked with performance on cognitive tasks. The current study observed the relationship between performance on the NIH Toolbox Flanker Task, a standardized measure of inhibitory control, and RS\(\theta\) power spectral density (PSD) differentials in 29 college undergraduate students using the B-alert X10 wireless Bluetooth EEG headset. One differential channel, C3-C4, measured the difference in PSD for sensors on left and right midline scalp locations. EEG recordings were processed and analyzed using AcqKnowledge 4.4 and B-Alert software. The results demonstrated a significant positive correlation between the C3-C4 RS\(\delta\) Differential and Reaction Time (RT) on the Flanker Test, \(r(26) = .43, p = .02\), and a significant negative correlation between the at C3-C4 RS\(\delta\) Differential and the Flanker Age Corrected Score (TBAC), \(r(25) = -.42, p = .037\). These results show that RS\(\delta\) signature brain networks between the hemispheres (central sensor sites) may reflect the brain’s preparedness for performance on inhibitory tests. The smaller the difference in PSD between these brain regions the better the performance on the Flanker test: shorter reaction times and higher accuracy.

***Return to Everyday Life: Child Soldier Reintegration Practices***

*Ashley Leroi*

The practice of child soldiering has been around for centuries and continues today in thirty six armed conflicts. The reintegration of child soldiers is crucial to study as the psychosocial effects of war on children influence peacebuilding and stability in communities. While research has focused on the recruitment, practice, and impacts of child soldiering, little attention has been paid to their lives and experiences beyond disarmament and reintegration activities. This paper focuses on the effects of reintegration practices in the communities, what the best practices for reintegration are, and what justice in reintegration might look like. Before we look into the reintegration practices, I will create a database on the reintegration processes of the 20 countries with the most child soldiers today to be presented as a foundation for this study. The database will be augmented utilizing interviews as well as a follow-up survey with child soldier nonprofit executives. These original data collection efforts will be compared to literature including case comparisons of longitudinal studies about the effects of reintegration programs on former child soldiers. The case studies will all be from Sierra Leone but differ based on type of reintegration process: assistance-based, psychosocial, and restorative justice. This finding of which reintegration process is most successful will be significant for child soldiering literature and nonprofits in policy changes and implementation of future reintegration practices across conflicts around the world.

***Rotation of Spiral Galaxies using the Extended Uncertainty Principle Modified Gravity***

*Alexis McHugh*

Traditional Newtonian dynamics failed to correctly predict the rotation rate of galaxies, as the observed data did not decrease as an inverse function of the radial distance. Once Einstein's theory of general relativity showed the relationship between space and time, the adjustment to galaxy rotation was explained with dark matter. Previous predictions of gravity attributed the flattening of galaxies to dark matter. The Extended Uncertainty Principle (EUP) is a non-relativistic theory that disregards the existence of dark matter. The EUP is a quantum correction to Heisenberg's Uncertainty Principle which changes a fundamental length \(L^*_\text{p}\). With the adjustments made with the EUP, the model of galaxy rotation is more accurate than conventional theories of gravity.
Searching for Euro-Mediterranean Synergies: Economic and Human Development gaps in Mare Nostrum
Francesco Fimiani

Much of modern Western history can be characterized by the rise of industrialization, profit incentives, statehood, and disposable income which has come to characterize “developed” society. Unfortunately, “the Western world” is really only a handful of countries. Meaning the majority of the world is still in the process of crafting these facets of a “developed” society. With a grouping of countries featuring a mixed bag of development outcomes, the Mediterranean region offers a window into the stark difference in life between the Global North and the Global South. This inequality gap affects prosperity and peace for all. My analysis establishes the history of where this development gap arose from; how it persists through existing maladaptive institutions, corruption, and repression of civil society; and how closing these gaps will render the Mediterranean region wealthier and more economically competitive on the world stage. The research was conducted through analyses on the history of nation building in the region, economic and human development indices, and the relationship between business and politics in each country. Ultimately, we will make an argument for why greater economic and human development in the region will dramatically heighten the importance of the Mediterranean region as an economic lifeblood in the world.

Smart Menstrual Cup Initiative
Megan Talbert, Emma Lee

Menstrual cups are often a life-changing period product for people with heavy menstrual flow who would otherwise use many tampons or pads per menstrual cycle. Heavy menstrual flow is often an undiagnosed version of abnormal uterine bleeding; a health issue affecting up to 30% of women of reproductive age. Measuring menstrual blood loss is crucial for getting a medical diagnosis for abnormal uterine bleeding, but currently the best method for measuring menstrual blood loss is very inaccurate and time consuming. To provide a safe, accurate, and convenient solution to quantifying menstrual blood loss, a smart menstrual cup is presented. In addition to measuring menstrual flow, this smart menstrual cup will have a suite of software to enable users to conveniently and securely track their menstrual flow and share this data with a doctor.

Smart Screen or Smoke Screen?
Olivia Bledsoe

The increasing use of smartphones and the rapid development of online applications have a significant effect on college students’ mental health and academic lives. Previous literature suggests that greater smartphone use results in poor academic performance, particularly among college students. Furthermore, excessive use of smartphones has been linked with depression and anxiety among college students. The present study aimed to identify the relationship between undergraduates’ smartphone use, mental health, academic performance, and which applications are associated with decreased mental health and academic performance. Participants uploaded their Apple iOS-12 Battery Use Screenshot (BUS) that included time spent on each iPhone application. Correlations between time and self-reported measures of positive affect and wellbeing, executive functioning, depression, anxiety, stress, and academic performance were computed. Average screen time, minutes spent on Facetime, and minutes on gaming applications were negatively associated with fall semester GPA. There was a negative association between time spent on TikTok and affect and wellbeing. Time spent on Snap Chat and stress and depression were negatively correlated, where more time spent on Snap Chat was associated with lower stress and depression. Therefore, time on smartphones appears to have a significant impact on the wellbeing and academic achievement of college-aged students, where specific applications may differentially affect academic performance and mental health.
**SOMEBODIES in Motion: Politics of the Body in Protest & Its Mobilizing Effects**  
*Kylie Francisco*

Although the human body has always been a component of protest, limited literature reflects on its role outside of the feminist discourse on reclaiming bodily autonomy. In this study, I will expand the scope of how the body is conceptualized in politics by demonstrating how the physicality of presence, movement, and orientation in space contributes to the efficacy of political messaging. Through an online survey experiment, I will determine what elements make the body a valuable tool of resistance and assess its effects in appealing to audiences. I argue that the visual, corporeal quality that the human body brings to sites of protest reaches observers more profoundly than other rhetorical mediums. My work will highlight the importance of investigating the physical elements of protest as a tool for advancing democracy and mobilizing public opinion.

**Spark Your Future**  
*Alaysia Barker-Vaughn*

This research and development project addresses a sociopolitical issue that has manifested for centuries: The lack of access to youth affected by the foster care system experience from the time they enter the system until they age out. According to the U.S Department of Education, “National research shows that children in foster care are at high-risk of dropping out of school and are unlikely to attend or graduate from college.” The project focuses on developing educational resources and programs such as one-on-one mentorship, workshops on how to fill out a college application, and how to write a college essay to aid students in understanding where their role in higher education opportunities is. How can all students who are affected by the foster care system have equitable access to promoting their education and life opportunities? The project will also provide Loyola Marymount University with the tools to jumpstart a program designed to tutor and mentor youth affected by the foster care system in the LA area.

**Species Range Assessment of Mytilus Congeners Along the U.S. Pacific Coast**  
*Caroline Manibo*

Warming seawater is providing opportunities for range expansion of marine invasive species, like that of the heat-tolerant mussel Mytilus galloprovincialis. Last assessed from 2000-2004, the species range of M. galloprovincialis along the U.S. Pacific Coast extended from San Diego to Eureka, CA, with the cold-tolerant congener, M. trossulus, dominant in Oregon. However, nearly 20 years have passed since the last Mytilus range assessment and range expansion/contraction may have occurred due to climate change since their species’ range is influenced by abiotic factors. Thus, the purpose of our study was to determine the current species range of M. galloprovincialis, M. trossulus and their hybrid along the U.S. Pacific coast. We hypothesized that a greater proportion of M. galloprovincialis mussels would be present at the northerly sites compared to the proportion found historically due to climate warming favoring species expansion. Adult mussels (N = 30 per site) were collected at 11 different locations from San Diego, CA to Coos Bay, OR and gill tissue frozen for genetic identification. We found that the range of M. galloprovincialis was similar to the historical survey and did not expand further north as hypothesized. M. trossulus was dominant in Coos Bay but showed evidence of hybridization that was not found historically. Finally, we found evidence of hybrid zone expansion from San Diego to Humboldt Bay. Thus, our findings suggest that abiotic conditions limit M. galloprovincialis range expansion and genetic mixing has expanded between the two species along the Pacific coast.

**Standardizing a Procedure for Quantifying Testosterone from Gull Excreta**  
*Alessandra Waller, Kathryn Inkrott*

Hormones mediate a wide range of avian physiological and behavioral traits, but hormones blood sampling is not always possible. Non-invasive methods of quantifying hormones are needed in studies such as ours on breeding Great Black-backed Gull (Larus marinus) behaviors. The link between testosterone and aggression is yet unstudied in this species, for which sampling if complicated since repeated captures of highly aggressive individuals is extremely difficult. Since obtaining excreta samples, produced by the simultaneous voiding of urine and feces, can be done repeatedly and with
minimal disturbance, quantification of excreta hormone levels removes these sampling issues. However, while quantifying testosterone from excreta is relatively common, few studies exist for gulls. As such, the goal of this project is to standardize a procedure to quantify testosterone in Great Black-backed Gull excreta.

Thus far, we have verified procedures for lyophilization, homogenization, initial extraction, and enzyme immunoassay of the samples. Our research demonstrates that the ideal method to preserve samples is by lyophilizing over 24 hours. We also found that to dry the sample after extraction, passive evaporation in a hot water bath, set to 45°C, for 36 continuous hours followed by 30-60 minutes under nitrogen is sufficient. Our work now focuses on optimizing the extraction process, particularly determining the number of extraction rounds needed to ensure maximum testosterone recovery while minimizing the amount of solvent used. Once our final protocols are validated, this project will determine if there is a link between testosterone levels and aggression in breeding Great Black-backed Gulls.

**Stem-loop Structure Thermodynamic Stability and Frameshift Efficiency at the HTLV-1 gag-pro site**

*Mary Soliman*

The human T-lymphotropic virus type 1 (HTLV-1) RNA genome includes two programmed -1 ribosomal frameshift (-1 PRF) sites. These sites allow ribosomes access to alternate reading frames encoding critical viral enzymes. The gag-pro frameshift site includes a slippery sequence, spacer, and stem-loop structure. How the stem-loop acts to promote frameshifting is unclear. Previous HTLV-2 research showed that changes to the gag-pro frameshift site stem-loop thermodynamic stability influenced its frameshift efficiency to a modest degree. There is substantial conservation between the HTLV-1 and HTLV-2 gag-pro frameshift site sequences (86%) and structures. We hypothesized that the HTLV-1 gag-pro frameshift efficiency would be similarly influenced by its stem-loop thermodynamic stability. To test this hypothesis, we designed 15 stem-loop mutants (SLMs) with varied base-pair composition. These mutations decoupled changes in overall thermodynamic stability from those localized to the stem-loop base. The SLM thermodynamic stabilities were calculated using nearest neighbor parameters and the in vitro frameshift efficiencies were measured with a dual-luciferase assay. Correlations between frameshift efficiency and thermodynamic stability were subsequently assessed. Preliminary results reveal a moderate correlation between the SLM stem-loop overall thermodynamic stability and frameshifting efficiency. No correlation was observed between the thermodynamic stability of the stem-loop base and frameshifting efficiency. While the overall thermodynamic stability does impact the frameshift efficiency, it cannot be used exclusively to predict it. This reflects a complex interplay between the frameshift site elements. Overall, our preliminary results suggest a conserved function for the gag-pro frameshift site stem-loop between the HTLV-1 and HTLV-2 retroviruses.

**Streetread: Teaching Culture in Poetry**

*Caden Young*

When I came to LMU, I settled on English for my major after some initial false starts. During the COVID-19 pandemic, my little brother struggled with the switch to online learning, and I tutored him and his friends, discovering my passion for teaching. So I made a switch to education while still maintaining my previous English major. One of the classes I took was Streetread. Streetread students are required to create lesson plans for at risk high school students, both to become stronger educators and to have the students in our assigned classes come away with a stronger understanding of poetry. I worked with a partner as well. We were assigned to a classroom in an all-black school, and each week we’d work together developing different lesson plans while developing a broad overarching theme for all of our lessons. The theme we chose was culture in poetry. Allowing these students to express themselves and what they experience in their culture led to subjects ranging from something simple like basketball to racial inequality. They were allowed to express their feelings in their culture and community, which I felt was essential. I discovered more about the type of educator I am, and the ways I can connect with students, which further solidified my desire to become a teacher in the future.
Strong Linguistic Relativity
Ava Totah

The theory of linguistic relativity can be divided into two hypotheses: the strong argument and the weak argument. The strong argument, sometimes called linguistic determinism, posits that one's native language determines one's thought in an inescapable manner. The so-called "Sapir-Whorf Hypothesis" demonstrates this, though many modern linguists now believe this principle – and linguistic determinism in general – to be implausible. The weak argument for linguistic relativity states that one's native language merely influences their worldview, such that it struggles to maintain a connection that is more than trivial. In this work, I seek a “third option” that is both a) plausible and b) non-trivial, such that it mediates these two hypotheses; I term this third option "strong linguistic relativity". Through an analysis of the ideas of Hans-Georg Gadamer and Paul Ricoeur, I argue that modern hermeneutics lends itself to strong linguistic relativity because it suggests that one's native language influences one's being-in-the-world in some non-trivial ways.

Suwandi Foundation Yayasan LMU
Lillianna Slaughter, Kaitlynn Pimentel

Last semester, while taking "Better World, Better Place", we combined our goals of advancing our knowledge in environmental education, with our nonprofit mission. Our project "Suwandi Foundation Yayasan-LMU" began in 2021 when a Balinese family asked to help fund and design an after-school learning center. We brainstormed fundraising ideas and built a team of young innovators who were excited to create a sustainably built campus in order to break the cycle of poverty and empower Balinese children to pursue their dreams.

We took a 46-hour journey across the globe, arriving in Bali, Indonesia to visit the build the site, take measurements, meet students, and teach a pop-up English class- all alongside local leaders: Putu & Agus. We made sure to maximize our time while learning as much as possible, working directly with local Balinese individuals who taught us culture, and connected us to community.

This experience taught us the power of togetherness. In order to be part of a positive change movement, you have to see other perspectives, make compromises, and recognize that your ideas can be wrong. Creating Yayasan-LMU is the first step in giving students a space to be uniquely themselves through music, art, environmental studies, English, and technology skills. Additionally, this project gives students the opportunity to enroll in our sponsorship program, which takes the burden of school costs off of their families. Seeing this impact in the community on the ground in Bali changed our perspectives of self and how we can build a better world.

Tend: Cultivating Biodiversity
Abigayle Gill

Biodiversity is an aspect of environmental health of which people are not generally aware. The term biodiversity refers to biological diversity either within an ecosystem– diversity of species within the system– or within a population– diversity of genetic material within one species. Both of these are important to maintaining ecological resilience which is a system's ability to resist, survive, or adapt to structural and climatic changes while maintaining ecosystem functions. Where we come into this equation is in both the ways we choose to interact with ecosystems out in the world and the plants we choose to cultivate in and around our homes. Whether it's through a yard, a window box, or some pots on a balcony, many of us are already interested in cultivating plants. The aim of this project is to prompt awareness within us as to what plants we are choosing to care for. In choosing to tend to plants that are native to the ecosystems in which we live, we can in part tend to the resilience of many other organisms and species within the system.
Testing Efficiency in NHL Betting Markets
Charles Luxton

The efficiency of markets is a prominent topic in the field of finance. Market efficiency has been thoroughly examined across many sub-sectors of finance such as the stock market and bond market. However, thus far, existing research has sparsely covered the increasingly prominent and valuable sports betting market. This market is currently valued at roughly $10B per year. In this article, we evaluate the efficiency of sports betting markets. Specifically, we use NHL betting lines and historical results from the past five years to create a multivariate probit model which tests the NHL betting market’s efficiency. We also discuss other trends and data in betting markets across the four major U.S. sports (NHL, NBA, NFL, MLB) to further analyze and discuss market efficiency and potential biases. Using our multivariate probit model to identify NHL money line bets with a relatively high probability of success compared to their odds’ implied probability, we are able to generate significant profit and beat betting markets, generating an 8.5% ROI when tested against the 20-21 NHL season. We therefore conclude that there is significant inefficiency within the NHL betting market, and sports gambling markets more broadly. An understanding of this inefficiency and its financial ramifications is critical to continued analysis and examination of this lucrative and quickly growing field.

The Black Band, They Play in November: A Collective Ideology or An Unraveling Cohesion
Robert Baransaka

Linked fate is an increasingly important factor when considering black politics and black voting behavior. Ultimately, blacks respond most noticeably to notions of linked fate—group consciousness evolving into political cohesion—thus determining a lot of the collective political decisions we’ve seen in past elections. However, with the lack of variation in the black votes of the past, it begs the question as to whether this uniformity will persist for future generations of blacks, and whether this uniformity can be attributed to a greater black voter phenomenon. Research on black political attitudes will help in detecting the influence of linked fate towards policy positions, as well as towards party alignment. The heart of my research project is a survey of 100-250 black college students, in which I will employ a bivariate analysis of survey data, and will perform logistic regression to identify where linked fate interacts the most amongst future black voters. With this understanding, I hope to also identify the influence of linked fate on party alignment and on a possible republican aversion. This research will be beneficial in uncovering a potential black republican aversion, possibly explaining the uniformity we have seen in the black vote in the past, and potentially explaining the uniformity we will see in black voters of the future. At the conclusion of research, I hope to have identified a collective black position base, pointing to the significance of linked fate in black politics, and contributing to the conversation the idea of a black republican aversion.

The Carcerality of Misogynoir: Decrypting Asylums, Policing, and Mental Hygiene Law
Rickelle Williams

Misogynoir is a term coined by Black feminist scholar Dr. Moya Bailey which describes how the hypervisibility of brutalized Black female bodies paradoxically yields to the erasure of their experiences. This project reconceptualizes misogynoir to analyze how the intersection of race and gender oppression produces a distinctive experience which disproportionately pathologizes and criminalizes Black women. I ask: How does misogynoir produce the pathologization and criminalization of Black women? Specifically: How does misogynoir function in the involuntary commitment of Black women? What are the carceral mechanisms by which misogynoir functions? Did the involuntary commitment of Kamilah Brock constitute a false imprisonment? Was Kamilah Brock punished? Beginning with an analysis of Brock v. City of New York case (a case in which Kamilah Brock was involuntarily committed), I demonstrate how the carceral logic embedded in the involuntary commitment surreptitiously functions as a punitive practice. Based on this re-reading of the Brock case via my reconceptualized account of misogynoir, I critique the theories introduced by Michel Foucault and Frantz Fanon to reinterpret the analysis of race and punishment. Overall, this project examines the interdependent nexus between race, gender, psychiatry, and law enforcement, and argues that misogynoir catalyzes Black women’s subjection to punishment.
The Conservation of Generosity Through Virtuous Friendship
Kiarah Hewitt

In Aristotle’s Nicomachean Ethics, he identifies generosity as the mean between extravagance and stinginess in the human realm of giving and receiving material goods. In Aristotle’s articulation of what generosity is, though, he claims that the generous person tends to slip toward the extreme of extravagance. As the virtues are known to be stable, this sort of tendency would seem to raise serious questions about generosity’s qualification as a virtue. For it to properly qualify, there must be something capable of keeping generosity stably at its mean and away from its extreme, and Aristotle likely realizes this. I contend that this something is a virtuous friendship and the manner in which friends in virtuous friendship are able to supplement the activities of the other. If friendship is the natural home of virtue, generosity properly belongs there. So, a person giving from her resources in a way that would be naturally supplemented and guided in a virtuous friendship would, if she were to do the same activities outside a virtuous friendship, end up giving more than she could properly afford, and thus, dislocated from her friendship, act extravagantly.

The Double Life of A Sex Worker
Anne van Wijngaarden

There are multiple sides to every person. The type of work someone chooses to do does not define her/him/them. So why is it that most Americans can’t treat a sex worker as a human being deserving of respect? America’s stigma underpins the criminalization of sex work and violence against sex workers. During my research last semester on sex work/prostitution, I asked myself, “How can the United States protect sex workers and improve their working conditions?” The answer seems easier said than done: Decriminalize sex work.

Sex workers have been demanding decriminalization for a long time but in the United States, buying and selling sex is still illegal. The criminalization causes sex workers to be more vulnerable to violence, including rape, assault, and murder. It also causes the continuation of stigmatization, exposes sex workers to police brutality, undermines sex workers’ ability to seek justice, and is incompatible with the human right to personal autonomy and privacy. Oblivious replies such as “Then why don’t sex workers just find a different job?” or “Doesn’t controlling sex work help fight those dangers?” are not the answer. I explain this in my research symposium, exploring pressures leading people into sex work and comparing decriminalization to the four approaches of prohibiting the sex industry. Ultimately, my research concludes that decriminalization gives sex workers the right to work safely and guarantees sex workers full human rights as workers in America, which is vital to help eliminate the many stereotypes and biases.

The Effect of Heat Treatment on Tensile and Fatigue Properties of LPBF Ti-6Al-4V Titanium Alloy
Abigail Massar, Logan Ader, Stephen Sung, Lauren Tully

The objective of this research is to evaluate the effect of four different thermal histories/heat treatments of the LPBF Ti-6Al-4V alloy on its tensile and fatigue properties. The California Institute of Technology engineers who work with the Materials Development and Manufacturing Technology Group at the NASA Jet Propulsion Laboratory (JPL), need our help in testing the fatigue properties of a material (Ti64) used in their components. These components are at the forefront in becoming the new material used in aeronautical and astronomical engineering devices, satellites, and spacecraft. The method of forming these Titanium alloys (Ti-6Al-4V) is through additive manufacturing. More specifically, this additive manufacturing technique is called Laser Powder Bed Fusion (LPBF), where the heat source in the form of a laser is used to consolidate material in powder form to form three-dimensional objects.

Our specific goals are to determine the exact correlation between thermal exposure of the LPBF Ti-6Al-4V and its changes in the yield strength, ultimate tensile strength, Young’s modulus, and percent elongation. These are the crucial properties engineers need to know to incorporate advanced materials into their designs. This information could be used to determine when 3D printed LPBF Ti-6Al-4V parts will fail and thus how they can or cannot be used.
The Effect of Maternal Cannabis Use on Developing Embryos
Amira Mahomed

Question: How does exposing early neurula-stage chicken embryos (stage 8) to Arachidonyl-2'-chloroethylamide (ACEA), a synthetic agonist of the cannabinoid receptor 1 (CB1), impact (a) the development of pre-otic neural tube and (b) the migration of the cranial neural crest, which give rise to major cranial nerves?

Methods: Open neural plate stage chicken embryos were treated with 1 uM ACEA. Embryos were re-incubated and collected at neural tube stage 10, at late neural tube stage 13, or at condensing cranial ganglia stage 18. Stage 10 and stage 13 embryos were antibody stained with Pax7 (pre-migratory and migratory crest marker) and HNK1 (migratory crest marker) to track the migration of cranial neural crest. Stage 18 embryos were antibody stained with TUJ1 (neuronal cell body and axonal marker) and HuCD (neuronal nuclei marker) to track the formation of the trigeminal ganglia. The size of the brain vesicles were analyzed morphometrically.

Results: Non-endogenous activation of the cannabinoid pathway through ACEA decreased the size of the pre-otic neural tube compared to control embryos, by neural tube stage 10. By late neural stage 13, cranial neural crest cells were found farther from the neural tube in ACEA-treated embryos, which may indicate a faster migration rate or the absence of late migrating cells. By condensing ganglia stage 18, embryonic survival rates fell dramatically in ACEA-treated embryos. Conclusions: Activation of the CB1 receptor by the cannabinoid agonist ACEA significantly decreases the size of the pre-otic brain, changes the migration patterns of neural crest cells and decreases embryonic survival.

The Effect of Multiple Stressors on Mytilus Galloprovincialis' Clearance Rate
Camya Brazil

Marine mussels (Mytilus) are common models for studying environmental stress on marine invertebrates and as a keystone species and filter feeder, they are essential for coastal community dynamics. However, most studies test a singular stressor while marine environments are composed of multiple stressors. Therefore, our project focused on investigating the effect of multiple stressors (hyposalinity and elevated heat) on Mytilus galloprovincialis clearance rate (CR), a proxy for feeding rate. We predicted that combinations of lower salinity (20 ppt) and elevated temperature (25ºC) will have a lower CR compared to the control conditions (17ºC, 34ppt). M. galloprovincialis (N = 95) were collected from Marina del Rey, CA and acclimated to control conditions without food in recirculating seawater tanks prior to experimentation. During experimentation, M. galloprovincialis were allowed to feed for 30 minutes in temperature and salinity treatment conditions (combinations of 17, 20 25 ºC and 34, 28, 20 ppt; total of 9 treatment combinations) and CR determined. We found that regardless of salinity mussels exposed to 20 or 25ºC showed a 50% decrease in CR compared to the control. For instance, at control conditions the mean CR 1.97 L/min*g while at 20 ppt and 25ºC the CR was 0.72 L/min*g. Therefore, these data indicate that multiple stressors due to climate change may negatively influence feeding of an important marine foundational species.

The Effect of Multiple Stressors on Mytilus trossulus in an Ever-Changing Environment
Larry Milshteyn

Climate change has altered the marine environment by changing seawater temperature and salinity. Marine mussels are ecologically and economically important marine organisms and as ectotherms their metabolic rate is dependent on the environment. However, it is unknown how the combination of temperature and salinity may influence the metabolic rate of mussels. Therefore, the purpose of this study was to determine the effect of multiple stressors (elevated temperature and hyposalinity) on the metabolic rate of two mussel congers, M. trossulus and M. galloprovincialis. M. trossulus and M. galloprovincialis differ in their physiological tolerance for stressors making them an ideal study animal for this experiment. For our study, we collected (N = 250) M. galloprovincialis from Marina del Rey, CA and (N = 250) M. trossulus from Coos Bay, OR, and acclimated them to control conditions (34 ppt/20ºC) for two weeks, prior to experimentation. After acclimation, mussels were placed in closed-system respirometry chambers which measured their metabolic rate while exposing them to fully factorial combinations of elevated temperature (17, 20, 25ºC) and hyposalinity (34, 28, 20 ppt) conditions. We found that lower salinity conditions (20 ppt) yielded a higher metabolic rate in M. galloprovincialis.
The Effect of Natural Disasters on Approval Ratings

Rebecca Singleton

Does the catastrophe of a wildfire have an immediate effect on approval ratings of state and federal elected officials? I contribute to recent literature on the effects of natural disasters on political approval ratings [Cole et al., 2012, Healy and Malhotra, 2009] by estimating the effect of the California wildfires on gubernatorial and presidential approval ratings. Utilizing county level data on gubernatorial and presidential, approval ratings, and the occurrences of CALFIRE’s named “Top Five Fires” over a two year period, I estimate a difference-in-difference model comparing approval ratings in California counties that experienced a wildfire between 2018-2019, with adjacent counties that did not experience a wildfire as a counterfactual. During my initial analysis, I found that the effect of a wildfire increased governor approval ratings by 10 percentage points compared to adjacent counties that did not experience a wildfire. However, in contrast I found the effect on presidential ratings was negative, decreasing the presidential approval rating 16 percentage points. While these effects are quantitatively quite large, they remained relatively constant when controlling for population, GDP per capita, and square mileage, suggesting that using adjacent counties as a counterfactual effectively controlled for local geographic and economic characteristics. For the future, I plan to test the robustness of my identification strategy by creating event study figures that compare pre- and post-trends, and analyze whether the negative effect for presidential ratings is associated with former President Trump’s negative comments about the California wildfires.

The Effect of Prolonged Thermal Exposure on the Mechanical Properties of 3D Printed AlSi10Mg Alloy

Abigail Massar, Logan Ader, Trenton VerKuilen

The experiment explored the mechanical properties of both Z-built and XY-built additive manufactured AlSi10Mg alloy specimens through tensile testing across different temperatures and times. The objective of this work was to determine the changes in mechanical properties of AlSi10Mg with changes in temperature ranging from 200°C to 300°C and time ranging from 15 minutes to 1000 hours for both the Z and XY orientations. First, 162 Z-built and 164 XY-built specimens provided by Boeing were examined using the Instron 4505 machine, measuring the ultimate strength, yield strength, and percent elongation. Next, optical microscopy was conducted on samples of both Z-built and XY-built additive manufactured AlSi10Mg alloy for the purposes of providing insight into the relationship between the structure of the material and its mechanical properties. The image results of the optical microscopy determined that as heat treatment is conducted on the AlSi10Mg, the clearly defined half-cylindrical shapes seen in the as-built sample become less defined as the Si particles transition from a dendritic structure to much larger particles. This, in turn, lowered the resistance to dislocation motion, lowering the mechanical strength and hardness of the alloy, while increasing the ductility. The results indicated that the hardness for the AlSi10Mg alloy decreased in all build directions for specimens heat-treated at higher temperatures and for longer times, with slightly elevated measurements of hardness for specimens built in the Z-direction.

The History of the California Justice System and its Effects on Latinx Immigrant Youth

Teresa Lechuga-Kanapilly

This exploratory study aims to identify historical methods and patterns of psychological violence in the California Juvenile Justice System and the influence that it has on immigrant detention centers today. The interdisciplinary and hybrid research conducted has identified paradigms between psychology and ethnic studies. The racial component to the analysis has resulted in finding consistent with the hypothesis and objectives. In this facility, the creation of stereotypes and racist biases towards Latinx youth were based solely on their intelligence. This put into question just how much rehabilitation one could provide minority delinquents (ChávezGarcia, 31). Following these results and research findings, a certain level of segregation took place in the facility. This led to there being a successful level of rehabilitation for white
students while Mexican youth were imprisoned in horrid conditions. This withholding of rehabilitation for minorities has impacted the progress and level of support physical and psychological support that they receive. In April of 2018, at least 2,600 families were separated. Reports from the U.S. government have identified abuse and inadequate conditions for UIM in detention centers (Todres, 2018). The psychological consequences of the separation and mistreatment is known to have lifelong ramifications with little to no support or resources.

The Impact of Over-activating Serotonin Receptor 2C in Developing Embryos

Brian Wells

Introduction: Serotonin (5-HT) plays a role in many events during embryonic development. These events include neuronal identity, limb development, and the formation of neural crest cells, which are precursors to the facial skeleton and the heart’s great arteries. Psilocybin, a psychedelic that has shown promise in the treatment of medication-resistant anxiety and depression, works by over-activating virtually all 5-HT receptors. However, neither the effects of psilocybin nor the effects of over-activating specific 5-HT receptors on embryonic development have been researched. In adults, the 5HT2C receptor (5HT2CR) has strong links to mood, sleep, and eating habits. Here, to determine the embryonic effects of over-activating the 5-HT2CR, we treated embryos with 1-methylpsilocin, a highly selective agonist for the 5-HT2CR.

Methods: A 10µM solution of 1-methylpsilocin was applied to chicken embryos at the open neural plate stage (stage 8) in ovo and the embryos were collected at the neural crest migratory stage (stage 13-14). To visualize the migration patterns of neural crest cells, the collected embryos were stained with HNK-1, Pax-7, or Sox-9.

Results: Preliminary results show that overstimulating the 5-HT2CR causes anomalies in both cardiac and cranial neural crest migration. In addition, the proportions of the different parts of the heart are irregular in 1-methylpsilocin treated embryos.

Future Directions: Future experiments to understand the teratogenic effects of 5-HT2CR over-activation will include (1) allowing treated embryos to progress further to study the fully formed heart and craniofacial structures, (2) generating a dose response curve for 1-methylpsilocin, and (3) blocking 5-HT2CR.

The Impact of Transracial Adoption on Racial Justice Allyship in Non-Adopted White Siblings

Lydia Zicker

The ongoing prevalence of racial injustice in the United States demonstrates the growing importance of White allies and co-conspirators supporting people of Color to combat the social systems which consistently favor White individuals and disadvantage people of Color. While recent psychological research on allyship has touched on issues of racial injustice, a gap in research on transracial adoption and its impact on allyship presents an opportunity for further knowledge and progress to be made. Bridging research on transracial adoption, outgroup ally development, and factors that affect racial attitudes, the research presented here examines predictors of racial justice allyship among non-adopted White individuals who have an adopted sibling of Color. We hypothesize that being raised with and internalizing colorblind racial attitudes will be related to decreased racial justice allyship, and that a sense of closeness with one’s adopted siblings, as indicated by the inclusion of the adopted sibling of Color in one’s sense of self, will be related to increased allyship. To test this, a sample of White non-adopted individuals with adopted siblings of Color will be recruited from a variety of adoption-focused organizations to complete a survey on adoption experiences and racial attitudes. Data are currently being collected, and results will be forthcoming. The results of this study will provide insights into the ways in which colorblind racial attitudes and close relationships across ethnic and racial lines can impact racial justice allyship, thus allowing for future progress in developing settings in which allyship can be increased on a large scale.
The impact of water temperature on Zostera marina seagrass morphology
Caroline Thorpe

Seagrasses are a keystone species across coastal regions, meaning they provide important functions to coastal ecosystems such as improving water quality, acting as a carbon sink, and serving as a habitat for marine life. Climate change has become an increasingly pressing problem and has induced multiple environmental stressors that threaten the productivity and abundance of seagrasses – specifically looking on the Pacific coast. With this problem in mind, it is important to study seagrass before too much damage is done to the species. We hypothesize that the species Zostera marina is affected by the increasing temperatures of the ocean. If the temperature in the ocean continues to rise, then the Zostera marina will degrade and the productivity and abundance of Zostera marina beds will be threatened. In a mesocosm experiment, Zostera marina, was collected in the beginning of the program, and placed in four separate temperature tanks – Heated (68° F), Ambient (temperature of vivarium), Cooled (60° F), and Chilled (55° F). Seagrass weight and morphologies were collected at the initial week when the Zostera marina was moved into experimental tanks and each following week for eight weeks. It was found that the Zostera marina declined rapidly in morphology and overall appearance when growing in the heated tank. The Z. marina in the chilled tank had sustained biomass for the longest period, lasting 7 weeks. This is crucial information as it will inform further research on the relationship between rising temperatures in the ocean and Zostera marina beds.

The Influence of Energy on Domestic and Foreign Policies in Central and Eastern Europe
Paulina Rezendes

This study examines the role of Russian energy as a means to influence foreign and domestic policies of sovereign eastern and central European states. As the main energy supplier to Europe, Russia has economic and political leverage over the European states which are dependent on its resources. In this study, I examine the question: “Do energy supplying countries have an impact on the foreign and domestic policies of recipient states?” To answer this question, I analyze how Russia uses its leverage from energy resources to influence the foreign and domestic policies of Bulgaria, Germany, and Poland from 1991 until the present. I find evidence of growing Russian influence in critical domestic industries and the selection of public officials and evidence of a more cooperative orientation from European Union states.

The Lamp Project at LMU
Rebecca Singleton

The Classics and Archaeology Department of Loyola Marymount University's Bellarmine College of Liberal Arts presents, in conjunction with Dr. Matthew Dillon and Dr. Caroline Sauvage, the endeavor of cataloging and digitizing the vast collection of ancient artifacts. The first part of this endeavor was the ancient lamp collection. As a research assistant I photographed, measured, and digitized core attributes of a number of lamps in the collection. A few of the aspects of the pieces that are cataloged for reference are the Munsell color number (which refers to the color based on a widely recognized scale), shape, size, region of origin, and approximate date of origin. I present the process and learning curve of the initial years of this project, which was one of many halted by the COVID-19 pandemic. My presentation introduces LMU's ancient lamp collection (one of the largest in the university system), the process of cataloguing, and the importance of protocol that this project established. The vastness of LMU's collections indicates that projects such as, and based upon, The Digitization of LMU's Vast Ancient Artifacts will take many years and the goal of this project is to set the precedent for further teams of researchers, and The Lamp Project hopes to inspire further research at LMU.
The Moderating Effect of Discipline on Community and Distance Learning Outcomes During COVID-19

Halley Jeanne Dante

Distance learning became common in 2020 when the majority of enrolled students transitioned to an online platform due to COVID-19. Because of the unique circumstances surrounding distance learning during COVID-19, prior studies that looked into distance learning before COVID-19 may not be applicable in today’s context. As the COVID-19 pandemic continues to demand distance learning, it is important to understand this mode of education including the factors that impact learning outcomes.

In this study, the role of community in distance learning across disciplines was analyzed by adopting the Community of Inquiry (CoI) framework, which measures a student's social, teaching, and cognitive presence, in a survey. The survey was distributed to a total of 104 undergraduates and correlations between responses, self-reported satisfaction and content understanding will be analyzed. The moderating effect of disciplines on this correlation was also analyzed where the term “discipline” was defined depending on course content and course structure. Course content was categorized using Biglan’s classification and course structure was categorized using four distinct pedagogical approaches.

Results have shown differences across disciplines where the CoI framework served as a better predictor of student satisfaction in Soft-Pure disciplines ($R^2 = 0.205, 0.585, and 0.508$ for social, teaching, and cognitive presences respectively) compared to Hard-Pure disciplines ($R^2 = 0.040, 0.245, and 0.345$ for social, teaching, and cognitive presences respectively). These differences highlight the need to understand distance learning across different disciplines to construct successful distance learning programs in the future.

The Multiple Meanings of Bias in Debates About the Accuracy of Pulse Oximeters

Daisy Huerta

The first pulse oximeter was developed in the 1970s, entering the clinical domain in the 1980s. Since then, they have become a routinely used technology for measuring oxygen saturation in the blood. During the COVID-19 pandemic, pulse oximeters have been heavily used in both clinical and home settings to monitor oxygen saturation in the blood. With this wide use has come greater focus on the accuracy of these devices, which has been debated among scientists for decades. Shining a light on these issues, Sjoding and colleagues published a commentary in New England Journal of Medicine calling into question their accuracy for darker pigmented individuals. Following Sjoding et al. (2020) and others, issues surrounding the accuracy of pulse oximeters received attention from several news outlets. Across these texts, pulse oximeters were consistently framed as biased. This research project sought to understand the historical development of pulse oximeters and the basis for debates about their accuracy. Methods: To address these questions, qualitative research methods were used to gather texts and conduct interviews with key scientists in the field. NewsLexi, Google, Google Scholar, and Web of Science were utilized to collect both scientific articles and newspapers articles. These texts were then analyzed using the principles of thematic content analysis. Results: I found that while “bias” is a term consistently used across news and scientific texts, the meaning of bias varied considerably. Discussion: In this presentation, I will describe findings from this research, highlighting different articulations of bias across texts.

The Portrait of a Nation: Visualizing Filipino American Political Identity in Los Angeles

Erica Riray

Existing scholarship on Asian-American political identity rarely disaggregates for the twenty-one subgroups within the broad category of Asian-American. In 2019, Filipino Americans accounted for 19% of the Asian population in the United States, ranking as the third-largest Asian origin group. Of the 4.2 million Filipino Americans in the U.S., the largest group (506,000) is concentrated in Los Angeles. While most research focuses on first-generation Filipino immigrants, there is little focus on their children and grandchildren and how their political identities are formed. Young Filipino Americans have different social identities vying for their political allegiance. In this project, I hope to demonstrate what drives the formation of political identity in Filipino American young citizens. Using Photovoice, a participatory photography methodology developed by Caroline C. Wang and Mary Ann Burris, I interview 30 Filipino American young citizens (18-25)
Currently residing in LA. Second, I survey a sample of 250 Filipino Americans (18-25) on their current political participation and interests. From this snapshot of the LA population, I hypothesize that the formation of non-immigrant generations of Filipino American political identity is heavily influenced by non-familial socializing agents.

The Role of Augmented Reality in Virtual Los Angeles
Zyrah Susarrey

Augmented Reality (AR) has become a new and thrilling form of technology that can have a limitless amount of possibilities for users to explore. AR technology within the last decade has been mainly viewed as a fun gadget for users to use. Nonetheless, within the last 5 years with the initial Pokemon Go app release (citation) and rise in popularity of filters has shifted how AR can co-exist together with the world. However, for AR technology to become a mainstay of everyday life, it will have to be designed with human factors in mind. There is often a lack of understanding of human perception and expectations and the drawback with AR in the current state is the lack of involvement from various voices and identities from communities. This research explores how accessibility of AR apps and AR function differs between three locations in the Los Angeles area, specifically, Little Tokyo, Hawthorne, and Downtown Los Angeles. Add a sentence about different demographics/histories/communities of these areas ..and a question about whether AR contributes to inequity or something else.. The research hopes to probe how designers can make AR accessible to the masses in a way that is beneficial rather than harmful for communities.

The Stability of Risk Preferences in the Wake of COVID-19
Matthew Cavanaugh

The aim of our research is to identify risk preferences through survey data during the COVID-19 pandemic. Using surveys conducted throughout the pandemic, although primarily the COVID-19 Behavior survey ran by ICL & YouGov, we plan to measure if risk preferences have been stable throughout the pandemic. The stability of risk preferences is still much debated but there is a strong body of evidence that argues massive exogenous shocks could cause a change in preferences. In our case, the exogenous shock is the COVID-19 pandemic. The survey run by ICL & YouGov is a large questionnaire covering topics such as changes in social behavior, mask wearing, measures taken to stay healthier, vaccinations, trust, and feeling about government policy. In the American data set, there is around 1000 responses from all over the country biweekly. Using this data set, we hope to be able to elicit beliefs by noting changes in behavior and find a reason for the change in risk preference, if there were to be any. We also hope to add to the literature on the stability of risk preferences.

The Topic of Trust: Angeleno's and the Police
Corinne Oliver

Across the United States, the subject of people's trust in institutions is widely discussed, particularly in regard to people's trust in the police. This project aims to better understand Angelenos' trust in the police departments in Los Angeles County as it relates to their race and generation. In 2021, 2,003 Los Angeles County adult residents were surveyed for the Los Angeles Public Opinion Survey conducted by the Center for the Study of Los Angeles where this topic was broached. Residents were asked, “How much of the time do you think you can trust your police department to do what is right?” In order to determine the relationship between race and generation on trust in their police department, the results of this question were analyzed using chi square tests of independence by two demographic variables: race, and generation. The results show a statistically significant relationship between a person's race and their level of trust in their police department. Additionally, the relationship between a person's age generation and their level of trust in their police department is statistically significant. The presence of a significant relationship between a person’s race and generation, and their trust in the police indicates that, if departments are looking to ensure their trustworthiness, the factors of race and generation are critical lenses through which reforms should be considered.
The White Supremacist Roots of Diversity, Equity, and Inclusion

Jolie Brownell

Summer 2020 marked a particular significance within Diversity, Equity, and Inclusion (DEI) work. While DEI work has been growing since the 1980s, a new resurgence of interest and investment in DEI followed after mass mobilization and Black Lives Matter protests against the wrongful murder of George Floyd in Minneapolis, MN. However, this increased interest is also accompanied by growing concerns around the impact of DEI work and whether or not DEI is actually working. This study embarks within this larger space of tension: what is the hope or promise of DEI work and why is such promise not being realized? More specifically, the aim of this study is to use feminist, queer, Indigenous abolitionist theories and politics to locate, examine, and critique the white supremacist roots of DEI frameworks and research models. This study samples 20 DEI and Racial Equity reports between Beaverton and Portland Oregon, across the sectors of education, employment, housing, city development and healthcare. From this in depth discourse analysis emerge multiple locations of white supremacist logics, namely around the meaning, logics, and deployments of disparity, access to opportunity, closing the gap, indicators, and racial equity. The strong underlying presence of white supremacist logics within DEI frameworks and research models implicates the work and aim of DEI towards dismantling systemic racism and institutionalizing racial equity. Therefore, this study challenges for a greater critical interrogation of the co-optation of white supremacy logic within DEI and an active resistance against the white supremacist promises of DEI work.

The Creation of a National Narrative: The Parthenon Marbles as Cultural Heritage for Greece and Britain

Emma Castro

By discussing the process in which a national identity is formed in both Greece and the United Kingdom, this paper explores the complexity of the argument for the restitution of the Parthenon Marbles, an ongoing dispute which began in the 1800s. The paper demonstrates how Greece uses the ancient artifacts to draw a connection between Classical and Modern Greece, whereas England's colonialist past arises in their claiming of the marbles as pieces of cultural heritage. This research focuses on the symbolism of the artifacts during the 5th century BCE up to the modern-day discourses surrounding national identity in Greece. The Parthenon Marbles are also discussed in the context of the British Museum and how they have become a vessel for the UK to create a national identity in connection to Classical Greece, influenced by colonialist sentiments.

TikTok's Censorship of Black Voices

Esmeralda Bruce-Romo

TikTok has been criticized for being a racist app since its inception, as users have witnessed and experienced app-based discrimination. Instances of discrimination manifest in different forms of censorship such as account suspension, account banning, shadow banning, hashtag blocking, etc. Black creators on TikTok have not achieved the same level of success that their non-Black counterparts have, and it is not for lack of trying, but an excess of hurdles in place to prevent Black creators from gaining the recognition, credit, and financial compensation that they deserve. TikTok makes use of a deficit model that implies Black TikTok creators are responsible for not reaching their full potential on the app. By releasing empty statements about racism and creating the Black Creatives Incubator Program, they actively ignore algorithmic oppression, deflecting the blame onto Black creators.

My research is inspired by Safiya Noble's Algorithms of Oppression, where Noble analyzes media searches and paid online advertising to prove that search engines like Google employ data discrimination against women of color. In my research, I provide context of anti-Blackness in mainstream entertainment in the United States to create a foundation that explains how it is plausible for TikTok to sensor Black voices. I include Black creators’ self-described and published experiences of censorship on TikTok to illustrate the extent to which TikTok algorithms go to suppress Black content. I argue that TikTok contributes to the grander narrative of the systematic silencing of Black voices and ultimately serves as a tool to uphold white supremacy.
**TMT: Transferability of Microexpression Training**
*Cameo Brown*

This study investigates the transferability of microexpression training, specifically the effect of training in one or two microexpressions on an individual's ability to recognize untrained microexpressions. Microexpressions, or non-concealed facial expressions that last for 0.5 seconds or less, have increasingly accumulated attention from various disciplines because of their potential application in different fields that range from clinical diagnosis to deception detection. In this study, participants took a pretest and posttest, to assess their ability to detect the microexpression portrayed before and after training on specific microexpressions. Participants were randomly assigned to one of three groups that trained on detecting one or two preselected microexpressions (happiness, disgust, or happiness and disgust). The study provides evidence that those who trained at detecting happiness microexpressions were able to better accurately detect untrained positive emotions (i.e, surprise). However, the study suggests those who trained in disgust showed no improvement or transferability. The results may suggest that training in positive emotions may be more effective for transferability than training in negative emotions. This experiment can shed light on how perceptual learning can be used with stimuli that contain social consequences. The implications of this project could apply to those who have difficulties gleaning social information from faces, such as those with particular autistic characteristics.

**Tooth be Told: Analysis of Digital Dentary Measurements in Rancho La Brea Carnivores and Herbivores**
*Aaron Shiinoki, Kendall Mata*

Technological advancements in paleontology have allowed for 3D renderings of specimens to become accessible to researchers worldwide. Dentary measurements in particular are of great interest due to their ability to serve as proxies for function and behavior in large mammals. Landmark-based measurements from scans of bones or fossils allow researchers to gather measurements remotely, which can lead to an unprecedented degree of collaboration amongst researchers. However, it is essential to understand if data gathered via landmark-based measurements from 3D scanned fossils are comparable with traditional caliper-based measurements from physical specimens. The similarity between morphological measurement techniques was tested by comparing remote landmark-based measurements with caliper measurements for five taxa from Rancho La Brea deposits: *Aenocyon dirus* (n=73), *Canis latrans* (n=111), *Smilodon fatalis* (n=72), *Bison antiquus* (n=55), and *Equus occidentalis* (n=64). Measurements were similar with 59% of measurements producing differences of less than five percent error among the five taxa. Measurements that fell above 5% error frequently differed in methodology. Therefore, this study indicates that comparable data can be collected from in-person caliper-based measurements and remote landmark-based measurements, assuming measurement protocols are the same between techniques. Furthermore, certain measurements are easier to collect in the digital modality. Here, we outline the qualities that make caliper measurements good candidates for virtual analysis. We recommend that collections worldwide be digitized to further advance the accessibility of specimens and safeguard from any potential damage associated with handling specimens.

**Trajectory and Heat Transfer of Ethanol Microdroplets through a Piezoelectric Generator**
*Ashley Salisbury, Patricio Osegueda*

Mechanical, electrical, and computational components of ethanol spray cooling were studied through piezoelectric microdroplet generation. Heat transfer and droplet trajectory data was collected and processed to understand the implications of ethanol's properties, microdroplet parameters, and patterns of effective surface cooling through microdroplet spray. A copper heated surface was designed to project microdroplets onto, resulting in an insulated surface within which temperature can be measured with thermocouples. Microdroplets of ethanol were projected through various amplified voltage waves, and their diameters, velocities, and reactions to surface heat were recorded. This was done with a Phantom high-speed camera, and individual videos were processed through Phantom PCC software. The combination of these different components led to effective microdroplet production and analysis of heat transfer (ultimately spray cooling) data. These results were amalgamated to understand which voltage waves and droplet parameters are most
effective in cooling heated surfaces. It was found that ethanol has four stages of microdroplet dynamics near mathematically predictable temperatures: puddling, immediate evaporation, dynamic boiling, and Leidenfrost vapor.

Transgender-Specific Legislation and the Well-Being of Transgender Individuals
Elizabeth Hecht

The purpose of this study was to assess the relationship between the physical and mental well-being of transgender individuals and transgender-specific legislation. Recently, there has been a dramatic increase in transgender-specific legislation (TSL) proposals aimed at limiting the rights of transgender individuals (Freedom for all Americans, 2022). The Minority Stress Model (MSM) indicates that minorities face additional, unique physical and psychological stressors due to their minority status (Meyer & Frost, 2003), and there is substantial evidence that TSL is correlated with negative outcomes for transgender people, including higher levels of anxiety and depression (Horne et. al., 2021; Puckett et. al., 2020), thus the MSM provided the theoretical grounding of this study. With assistance from a market research firm, 50 cisgender U.S. adults and 50 transgender U.S. adults were recruited, and they completed measures on discrimination, social support, and emotional well-being, among other variables. Following the MSM, it is predicted that within the transgender group there will be negative correlations between TSL awareness and measures of emotional well-being, life satisfaction, and perceived physical health, and a positive correlation with perceived discrimination. Planned data analyses will compare the cisgender and transgender groups to examine potential negative outcomes that may be unique to transgender individuals. Social support is predicted to be a protective factor for the transgender group against the potential deleterious impact of TSL. Data collection is complete and analyses are underway. If hypotheses are supported, findings will provide further evidence of links between restrictive legislation and negative outcomes for transgender individuals.

Transparency In The Fashion Industry
Sydney Toth

Following the Rana Plaza Disaster of 2013 in Bangladesh, there was a rise in activism and push for awareness within the Fashion Industry to bring to light the issues regarding human rights and sustainability across all levels. From this there has been a call for increased transparency within the industry, which is a system of pushing big brands to disclose information to the public about their production process from sourcing of textiles, to supply chain conditions. Although their has been legislation and acts put in place to continue to urge these big brands to publish transparent information, there have not nearly been enough strides in the right direction. The root of the issue that this thesis unveils focuses on the idea that there needs to be a consumer-based approach to discussing transparency and the role we play in making the industry one that is more sustainable and ethical. Through research, graphics, and writing this thesis will grant consumers the knowledge and resources needed to make effective changes in their buying practices as well as in the Fashion Industry as a whole.

Two Hundred Feet Off The Ground
Carson Bennett

Two Hundred Feet Off the Ground is a short film script that investigates how someone can overcome their own fears in a life or death situation as a fictional narrative short film. The film pulls from the traditional three-act structure in order to highlight the storytelling within this sport. In the current film landscape, outside of the pulpy and ludicrously constructed stories of Cliffhanger (1993) and Vertical Limit (2000), the rock climbing scene has seen almost no fictional stories. Instead, it is dominated by documentaries. Whether in the form of individual feature-length portraits like 2018’s Free Solo, more historical films like Valley Uprising (2014), or short-form climber highlights like The Golden Ticket, 5.14c (2017), this sport sees films almost exclusively focusing on real climbers and real climbs under some interesting circumstance. However, just as the broader sports film genre has benefited greatly from a diverse range of documentary and fictional films such as The Blind Side (2009) or even Dodgeball: A True Underdog Story (2004), rock climbing is full of possibilities. Two Hundred Feet highlights this possibility by telling a story about someone not to be found in traditional documentaries, someone new to the sport, and tells a story that could not be caught naturally on a documentary camera, a
UBTF tandem duplications predict poor outcome in FLT3-ITD+ pediatric acute myeloid leukemia

Leila Robinson

Acute leukemia is the most common form of childhood cancer. Acute myeloid leukemia (AML) comprises 20% of pediatric acute leukemias, and has a 5-year overall survival rate of 65%. Identifying prognostic genetic changes in AML is important for predicting outcome, and for discovering new therapeutic targets to treat disease. The molecular alterations to the genome present in pediatric AML are distinct from those in adult AML. Internal tandem duplications in FMS-like tyrosine kinase 3 (FLT3-ITD) are well-known predictors of poor outcome in pediatric AML and have been used as a target for therapeutics. Outcomes associated with FLT3-ITDs modulate significantly depending on co-occurring genetic alterations, namely WT1, NPM1, and NUP98-NSD1 mutations. Preliminary data suggested that another ITD in the upstream binding transcription factor (UBTF) gene is also associated with disease progression and frequently cooccurs with FLT3-ITD. We hypothesized that UBTF-ITDs influenced outcome associated with FLT3-ITD positive pediatric AML. Using PCR and fragment analysis, UBTF-ITDs were identified in 15.9% of 410 FLT3-ITD positive patients from three clinical trials (#NCT01371981, #NCT01371981, #NCT00002798). Clinical trial data was used to compare event-free and overall survival associated with the FLT3-ITD/UBTF-ITD combination and other FLT3-ITD mutation combinations. Overall, UBTF-ITDs seem to predict outcome similar to WT1 mutations (p>0.05), worse than NPM1 mutations (p<0.05), and better than NUP98-NSD1 fusions (p<0.05). These results demonstrate the utility of UBTF-ITDs as a prognostic tool in pediatric AML. Further research should aim to discover the functional biological effects of UBTF-ITDs, and establish a clinically-useful threshold for UBTF allelic ratios.

Unconscious Priming From New Vocabulary Words Learned in a Single Session

Julia Trudeau, Samantha Cheng, Elizabeth Hecht, Paola Cervantes, Eylul Akgul

Processing of visual language involves complex coordination of brain systems that function within and outside of conscious awareness. In the literature on unconscious priming—i.e. the effect of a briefly-flashed, visually masked consciously imperceptible word on the response to a visible target word that follows it—findings over the last two decades have established that for common, overlearned words, unconscious priming is observed reliably when participants are first exposed to primes in visible form, implying that temporally proximal conscious experience and expectation enables processing handled by unconscious systems alone. In the experiment reported here, we show that a similar process occurs for words of extremely low frequency that participants learn for the first time within the context of the experiment. Participants acquired the names of obscure fish and flowers in a short first learning session. They then completed a priming task in which the masked primes were the newly-acquired fish and flowers, and the visible targets were common fish and flower names. For half of the participants, the priming task immediately followed the learning session. For the other half, 24 hours elapsed between the two sessions. Results showed significant priming for both the same-day group (p = 0.033) and the 24-hour group (p = 0.027). These results indicate that newly-acquired words functioned as unconscious primes after only one learning session; therefore recruitment of these words into unconscious processing is rapid. Additionally, the newly-acquired words persisted as primes after 24 hours, demonstrating that this learning is durable.

Underfunded Schools and Their Impact on Students' Education

Jordyn Patterson

In this paper, I study the outcomes of students who attend “underfunded” schools, meaning they lack resources such as mental/physical health services, extracurricular activities, counselors, computers, textbooks, etc. compared to neighboring well-resourced schools. The research question that guided my study was: What factors significantly influence the high school graduation and college matriculation rates of Black and LatinX students in under-resourced schools? Through snowball sampling and a screening survey, I interviewed Black and LatinX students who attended underfunded high
Understanding and Improving Mononuclear Iron Photo-oxidation Catalyst Design
Kristal Stevens

Research improving hydrogen production from non-carbon sources is essential for reducing greenhouse gas emissions from fuels. Water oxidation, which splits water molecules into hydrogen (protons) and molecular oxygen, is a thermodynamically challenging, multistep reaction achieved in all photosynthetic organisms via photocatalysis. Mononuclear transition metal water oxidation catalysts that aim to mimic nature typically rely on heavy, rare metals such as ruthenium and iridium. Replacing these metals with iron is particularly appealing because it is abundant, safer, and inexpensive. We use density functional theory to characterize the catalytic ability of 15 mononuclear iron photocatalysts with varying degrees of electron withdrawing behavior in their ligands. We quantify the energetics, bond lengths, and charges in each of the steps leading to the highest oxidation state of the metal and necessary O-O bond formation in a mechanism analogous to that determined experimentally for ruthenium catalysts and to that followed in Photosystem II. Although many of these catalysts exhibited prohibitively high redox potentials in achieving the Fe(V) state required in this mechanism, a few display promising energetics and stability at each step explored. These results provide insights regarding the feasibility and performance of water oxidation catalysts using earth abundant metals as well as clues pinpointing mechanistic steps where catalytic ability degrades.

Understanding Communities of Color, COVID-19 Vaccination Concerns, and Vaccine Ad. Strategies
Judith Chavez-Cardenas

Since April 15, 2020, free COVID-19 vaccinations have been available to all California adults. Communities of color continue to report some of the lowest vaccination rates in the state, which leaves them vulnerable to the detrimental effects of COVID-19. These low vaccination rates are attributed to misinformation, mistrust in the medical field, and overall fear towards the medical industry. One of the leading ways to consume COVID-19 related news and information is through social media, however, some accounts post misinformation. This project examined the COVID-19 vaccination narratives shared among communities of color through social media and the strategies that are being utilized to reach this audience. Through a content analysis of 5 Los Angeles-based organizations’ Instagram accounts, I analyzed posts that directly mentioned the COVID-19 vaccination and screened for words and images that conveyed trust or connection to cultural values to understand the narrative of vaccination shared among these communities. The results showed: (1) representation and connection are being utilized through the images of families of color and language used (2) content from official health accounts is being reshared. This suggests that community organizations are utilizing a trust and cultural-based approach to disperse COVID-19 vaccination information, and also, one main source of information for communities of color are developed by local health departments and distributed by community organizations’ social media content. These findings suggest that social media is one way to deliver messages among communities of color, but also that public health messaging needs to be culturally competent.
Undocumented Students in Higher Education
Lizbeth Ramales Arango

This study focuses on how Deferred Action for Childhood Arrivals (DACA) status affects the educational outcomes and accomplishments of undocumented students at LMU. In this study, I include an overview of the (a) the legal history of DACA, (b) psychological effects of DACA, (c) limitations for students in higher education, and (d) the extent of DACAmented students’ political/civic engagement. The research question guiding this study: How do DACAmented students plan to fulfill their future career goals/aspirations despite social and political barriers? Rather than focusing on the individual identities of DACA students, I consider how university experiences have shaped their future aspirations. I used purposeful sampling through my LMU networks to conduct ten semi-structured interviews with DACAmented students from LMU. Results show that academically successful DACAmented students seek long term financial security and actively give back to their communities. They also strive to support other undocumented students by staying current about knowledge about legislative initiatives that affect college access. Study participants discuss their future plans within the limited set of possibilities legally available to them. These DACAmented students long for upward mobility to share with their families and communities and view social obligations as a fundamental piece of their lives. This study broadens our comprehension of resilience as a powerful tool of empowerment to motivate students’ post-graduate degrees and aspirations. I demonstrate how specific directions and support affect DACAmented students and that institutional guidance is the basis for their academic achievement and commitment to progress.

Unexpected Outcomes: The Future of Alternative Working Environments
Nelly Carrillo

COVID-19 has created shifts in the workspace, the addition of remote and hybrid workplaces may have changed attitudes among residents of Los Angeles. I will examine the attitudes Angelenos have to different work environments based on their: race, employment status, and education level. Due to the ongoing effects of the pandemic, the attitudes towards different working environments have not been explored in depth. This project may provide insight into the groups that support or disapprove of alternative working methods. In 2021 the Center of Study for Los Angeles (StudyLA) conducted its 2021 LA Public Opinion Survey (n=2,003). One of the questions asked residents about their opinion on remote work. Results indicate that white and Latino/a respondents are most comfortable with working in person exclusively. There is a general preference for working a hybrid schedule for respondents of all races. Both employed and unemployed individuals are likely to support hybrid working schedules or prefer working mostly at home. Additionally, individuals with high school education and above are supportive of alternative working spaces. In conclusion, this project sheds light on the attitudes toward ongoing changes to working environments. Generally, there is support for alternative working environments among people of different races, education levels, and employment statuses.

Visual Field Dependence in Swimmers
Aurora S

Visual field dependence will determine the extent of the visual context one focuses on. If the visual context is not reliable, they will be prone to errors. Field independence is the ability to accurately distinguish potentially deceptive visuals, through the use of other senses such as vestibular cues. Field dependent people are focused on visual context potentially leading to inaccurate perceptual estimates. Our study will utilize the rod and frame as a measure of field dependence. Studies have indicated that expertise and regular engagement in athletic activities may influence reliance on visual cues. For example, dancers have been identified as more likely to be field independent. Data was analyzed from prior studies in the cognitive psychology lab for associations between activity and field dependence. Data was mixed, suggesting the need for future research. As suspected, there was an association with time spent dancing weekly and fewer errors. Swimmers had greater accuracy on the rod and frame than non-swimmers while in the supine position. To our knowledge there are no studies that have tested competitive swimmers’ field dependence. Swimmers consistently reorient their body and vision through flip turns and breath rotations, while maintaining a straight path. The Spring 2022 study will recruit members of the Loyola Marymount University swim team. We hypothesize that swimmers will have fewer errors on the
rod and frame and consequently will have higher levels of field independence. A second hypothesis is that swimmers will have higher balance scores in comparison to non-swimmers.

What Drives Opposition to Immigration - An Analysis of Sicily, Italy
Tessa Muller

This paper will examine which specific concerns drive opposition to immigration in Sicily, Italy. The Sicily case study provides us with a population that was suddenly (around 2011) forced to grapple with the questions surrounding immigration. Because of this, it is an ideal case for further study. My research question - what drives opposition to immigration in Sicily? - will be answered through the analysis of public opinion data and data on migration patterns. I will also conduct interviews of immigration policymakers and journalists in Sicily and ask them to rank the various concerns expressed about immigration by degree of seriousness. I expect to find that the “common sense” consensus that opposition to immigration has dramatically increased in Italy is false. I predict that Sicilian opposition to immigration has marginally increased and that that small increase is due to fears about increased crime, a perceived degradation of Sicilian culture, and concerns about the national and local economy.

Who Do You Say That I Am?: An Exploration of Whiteness in the Catholic Church
Jose Camacho

The sixteenth chapter of the gospel of Matthew introduces us to probably the most powerful and personal question asked in the Bible, when Jesus asks Simon Peter, “Who do you say that I am?” (Matthew 16:15). For people of color, we have been asking this question of ourselves since the day we were born. The identity of a person of color is something that we struggle with for a lifetime, and it is something that can be very influenced by the environment around us. The sad fact is that many people of color feel an identity of insecurity, low self-esteem, and shame within the church, but why? A large influence of the identity of people of color within the church stems from the identity of Christ himself. If we cannot understand Christ's identity and how it relates to ours, then how are we to feel a sense of connection and love to this figure, our supposed savior. Through the research of the race of Jesus Christ, the historical events surrounding racism and the Catholic Church/Christianity, and the representation of Christian figures in art, we can work towards a “New Church” by answering the main questions, Why is Jesus white in Christian Art, what are the consequences of a white Jesus in our society today, and what impact could it make on the lives of people of color to see a non-white Jesus?

Worldwide frequencies of SNPs conferring lactase persistence in humans
Claire Kosewic, Erykah Walton, Elizabeth Haugan

The human trait of lactase persistence (LP) is the ability to produce the enzyme lactase, and thus digest the milk sugar lactose, into adulthood. Reports of how many in the world’s population express this trait range from 16-35%, although this may be an overestimate. Most adults worldwide are not able to metabolize lactose effectively, referred to as lactase nonpersistence (LNP). The consumption of dairy products by an LNP individual can result in mild to severe gastrointestinal symptoms such as bloating, gas, and diarrhea. The lactase enzyme is encoded by the LCT gene on chromosome 2, whose expression is regulated by an enhancer that lies over 13,000 base pairs upstream of the transcription start site. A review of public SNP databases reveals that >75 single nucleotide polymorphisms (SNPs) are found in this enhancer region. The best-studied is a C->T variant (rs4988235) at position ~13,910 bp upstream, where molecular evidence shows that the T allele confers the trait of lactase persistence. Databases show frequency data for this SNP for some homogenous populations, but reliable data is not found for the heterogenous US population. Our work seeks to fill this gap. We summarize previously published SNP data as well as genotyping data gathered in our lab at LMU. A more reliable estimate of the frequency of LP and LNP in the US population will allow us to shape US dietary guidelines so that they reflect the needs of diverse groups.
Writing "The Other" into a Feature Screenplay: "The Show Must Go On"

Myles Kovalik

The primary objective of my project was to write a feature length screenplay based on the concept of representation of "the other" as learned in Professor Zacharia's class Representations of Greece Ancient and Modern.

I had never written a feature-length screenplay before so I also desired to learn how to turn a ten page treatment into a 100 page work. I spent one week researching potential festivals to submit my finished screenplay to, making a scene by scene breakdown, and creating visual materials such as a poster to help guide my writing process. I then spent the next five weeks actually writing pages of a script titled "The Show Must Go On."

The script is about a small-town theater company producing a one act play about the 1950s Red Scare and finds that its themes are inescapable in their own lives when a rival troupe moves into town. In the ensemble film, the main troupe treats the rival company as the "other" in ways consistent with what I learned in Professor Zacharia's class.

At the end of the program, I finished with a complete 97 page feature length script and have since applied the skills learned to completing another feature length script. I have submitted my screenplay to festivals and am awaiting results.

Zostera marina sediment blue carbon stock in relation sediment grain size and nutrients at

Roland Troyan

Seagrasses sequester large amounts of carbon both in their mass as well as in the sediment through the rapid burial of organic matter, this sequestered carbon is known as blue carbon stock. Although seagrasses sequester large amounts of CO2, further global investigation is needed due to the small sample size of sampled blue carbon stock sites (Fourquean et al., 2012). Z. marina, or eelgrass, is commonly found throughout the northern hemisphere and along the coast of California. It is suggested that mud content, among other factors, is positively correlated with carbon stock (Röhr et al., 2018). Macroalgae and diatoms are major contributors to organic carbon stock, however the relationship between diatom concentration and carbon stock is less studied (Ward et al., 2021). With these factors in consideration, blue carbon stock was determined for 3 Northern Californian sites of various latitudes via sediment core analysis and grain size analysis, paired with water column nutrients analysis. Of the current available results, it is estimated that Tomales Bay has the highest average blue carbon stock although, both chlorophyll-a and phosphate concentrations are not significantly different between the sites. A combination of greater replicates and calculation of percent macroalgal coverage would provide further insight into macroalgal and diatom relationships with blue carbon stock. Understanding these relationships are crucial to effectively restoring and protecting eelgrass habitats while sequestering more CO2 (Oreska et al., 2018).
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