

Spring 2021

Undergraduate Research Symposium

Winners

Most Popular Award

Insight on Global Sex Worker Industry

Presenters: Matthew Vincent Ballou; Taylah Bland; Emily Kramer; Angelina Zhou and Susan Zou
Mentor: Jia Miao

This study aims to provide an understanding of the relationship between how sex work is regulated and the level of violence against sex workers in a given area to better determine which is the most effective regulatory model in preventing violence against sex workers. This proposal will first present a global picture of sex work industry, then provide a multi-policy perspective on Australia, where legislation surrounding the sex work industry varies significantly in each jurisdiction in different territory. We propose to answer this question with a mixed-modes observational study. This study will be a mixed-modes observational study, using quantitative and qualitative data gathered from questionnaires, in-depth interviews, and existing datasets.

Best Research Project

Microcircuits Involving the Dorsal Raphe-Projecting Pyramidal Neurons in Layer V of Medial Prefrontal Cortex Correlate with Murine Vulnerabilities to the Activity-Based Anorexia

Presenter: Muzi Du

Mentor: Chiye Aoki

Anorexia Nervosa (AN) is an eating disorder characterized by voluntary food restriction and excessive exercise. While research have uncovered the roles of dorsal raphe (DR) in regulating murine feeding behaviors, its inputs from the medial prefrontal cortex (mPFC) haven't been studied in the context of AN. In this project, we selectively activated DR-projecting pyramidal neurons in mPFC with Designer Receptors Exclusively Activated by Designer Drugs (DREADDs) to investigate their roles in the anorexia-like behaviors of mice. Electron microscopic immunohistochemistry and immunofluorescence were used to quantify the innervations and the activities of neurons in mPFC following DREADD-mediated activation.

Best Poster

Experimental Characterization of ALD Grown Al₂O₃ Film for Microelectronic Applications

Presenter: Yida Chen

Mentor: Pingping Ding

The study of high dielectric materials has received great attention lately as a key passive component for the application of metal-insulator-metal (MIM) capacitors. In this paper, 50 nm thick Al₂O₃ thin films have been prepared by atomic layer deposition technique on indium tin oxide (ITO) pre-coated glass substrates and titanium nitride (TiN) coated Si substrates with typical MIM capacitor structure. Photolithography and metal lift-off technique were used for processing of the MIM capacitors. Semiconductor Analyzer with probe station was used to perform capacitance-voltage characterization with low-medium frequency range. Current-voltage characteristics of MIM capacitors were measured on precision source/measurement system.

Best Research Project

SEL Programs and Their Implications for Migrant Children In China

Presenter: Yi Jie (E'jane) Li

Mentor: Lixian Cui

Although the benefits of Social Emotional Learning (SEL) has been demonstrated in current research literature, especially for at risk populations, little of its effects has been studied to the same extent in cultural contexts outside of the United States. In China, the population of migrant children has steadily increased, but governmental policies have yet to address the structural barriers which they face as they move to urban cities. This project overviews the current literature on SEL programs and the situation of migrant children in China, highlighting some of the most prevalent concerns and implications for future practice.

Best Poster

Feminine Health and Hygiene on the Chinese Woman's Position in Chinese Society

Presenter: Yipu Li, Yufei Liu and Nina Ruffolo

Mentor: Yuan He

In order to understand women's societal positioning in China, our research analyzes feminine health's impact. Our data comes from over 13,000 respondents in the 2020 survey of "Living Status of Women in China's" section on feminine health. Through MaxQDA our group used loop coding and grounded theory to qualitatively analyze our data. Responses included inequitable access to contraceptives, sex education, and medical services, while reporting high levels of stigma surrounding their health. Most interestingly, we found many responses surrounding the government trying to increase fertility by pushing aphrodisiacs into the healthcare system, simultaneously moving contraceptives out.