

CSU STANISLAUS
Honors capstone Conference

John Rogers Faculty Development Center
Tuesday May 17th, 2011
1:00-5:00pm

Schedule of presentations

1:00-1:15pm (and on display)
Capstone Research Proposal Posters
by Honors Juniors
&
Refreshments

1:15-5:00pm
Senior Capstone Research Presentations
by Honors Seniors

Sponsored by the University Honors Program, CSU Stanislaus,
Turlock CA 95382 (209) 667-3180

1:00 -1:15 *Welcome, Refreshments, Juniors' Posters*

Featured presentations

1:15 -1:35 **Breeann Wright: *Higher Consciousness in African Grey Parrots: Jumpstarting Sentience through Early Language Acquisition***

Mentor: Dr Dawn Strongin (Psychology)

Breeann will graduate with a triple major in Cognitive Studies, Psychology, and English, with a minor in Philosophy. She was a Presidential Scholar and was on the Dean's List. She presented her research at the statewide CSU Honors Colloquium and is preparing to study for a year in Luneburg, Germany.

1:35 -1:55 **Jessica Padilla: *A Comparison of GPA and Graduation Rates between Students Transferring from Community Colleges and Native Students***

Mentor: Dr. Jim Riggs (Advanced Studies in Education)

Jessica is graduating summa cum laude. She received scholarships from the Alumni Association Stockton Chapter and the Stockton Host Lions Club. She won the Provost Achievement Award for Community College Transfers for 2 years. She was a member of Phi Kappa Phi, Psi Chi-secretary, LULAC, the Faculty Mentor Program, and the Student Leadership Program.

1:55 -2:15 **Kelly Ann Olsson: *Suicide (Jisatsu) and Groupism (Shuudan) in Japan***

Mentor: Dr. Steve Stryker (English)

Kelly has been on the Dean's List for 3 semesters and is the recipient of the Transfer Student Provost Scholarship for '09-'11. She presented a prize-winning paper in the first round of the statewide CSU Research Competition and also presented her work at the CSU Honors Research Colloquium and the Central California Research Competition. She is a member of Sigma Tau Delta and of the Hunger Network.

2:15 -2.35 **Verónica Sanchez: *Learning How to Listen: Discovering Southeast Asian Ethnomedical Practices and Beliefs***

Mentor: Dr. Ida Bowers (Anthropology)

Verónica is graduating cum laude; she was on the Dean's List for two years, and is an intern and research assistant at the Bridge Community Center in Modesto. Her current project was presented at the statewide CSU Honors Colloquium.

Break for Refreshments and Posters

2:50 - 3:10 Robert Searway: *The Artist and the Spectre: Divine Vision in the Earthly Work of William Blake*

Mentor: Dr. Arnold Schmidt (English)

Robert is graduating summa cum laude; he has a Presidential Scholarship, and was on the Dean's List for 3 years. He is a member of Phi Kappa Phi, and Sigma Tau Delta.

3:10 - 3:30 Rodolfo López, Jr.: *Perfecting a Super-recipe: A study of Critical Current density in Pb-doped Bi₂Sr₂Ca₂Cu₃O_{11-δ} Superconductors*

Mentor: Dr. Lu Rose Zhang (Physics)

Rodolfo was a Provost's Scholar. He co-authored a paper on his research in Applied Physics Letters (2009), and won Honorable Mention at both the Washington State Undergraduate Research Conference, Emerging Researchers National Conference in STEM, and also at the American Physical Society Meeting (2011). He was a finalist in the statewide CSU Research Competition.

3:30 - 3:50 Marina Long: *The Warrior's World: Where Anglo-Saxon Weaponry, Literature and Culture Interact*

Mentor: Dr. Tony Perrello (English)

Marina is graduating summa cum laude. She has had a Presidential Scholarship for 4 years, and was on the Dean's list for 3 years. She is a member of Phi Kappa Phi, and is a standard-bearer for the College of Humanities and Social Sciences.

Break for Refreshments and Posters

4:00 - 4:20 Adrina Gabriel: *An Economic Analysis of the Benefits and Limitations of Solar-Power Photovoltaic Technology Implementation by Consumers*

Mentor: Dr Kelvin Jasek-Rysdahl (Economics)

Adrina is graduating cum laude. She was on the Dean's List and received an Honors Scholarship for 3 years and a Mary S. Rogers Scholarship for 2 years. She is a member of Delta Omicron Epsilon.

4:20 - 4:40 Adam Jorge: *Oceans-21 and the Future of United States' Ocean Policy: Understanding the Importance of the Monterey Bay Marine Sanctuary Area and Environmental Recovery Efforts*

Mentor: Dr Stephen Routh (Political Science)

Adam has a Provost's Scholarship and was consistently on the Dean's List. He was the recipient of a Panetta Congressional Internship in Washington DC, and also participated in the Sacramento Semester Program. He is currently a finalist for a second internship in Sacramento.

4:40 – 5:00 Charlene Emerson: *Phylogenetics of Freshwater Sculpin*

Mentor: Dr Marina Gerson (Biology)

Charlene was the recipient of the Presidential and McNair Scholarships; she was consistently on the Dean's List and is a member of Phi Kappa Phi. She presented her work at the statewide CSU Honors Research Colloquium, and was a finalist in the statewide CSU Research Competition. She has been awarded a summer internship at UC Davis.

ABSTRACTS

Phylogenetics of Freshwater Sculpin

Charlene Emerson (Biology)

Reconciling observed genetic variation with evolutionary history is often a daunting task, one that is frequently approached using phylogenetic methods. Historically, phylogenetic trees have been generated using a single gene approach, where variation within a single mitochondrial gene is used to create a phylogenetic gene tree. However, this single gene method may fail to account for the full variation across a genome, especially when nuclear DNA is not considered. Shortcomings of the single gene approach are most apparent in complex organisms, such as the freshwater sculpin (*genus Cottus*). Eighteen DNA samples from freshwater sculpin across the Pacific Northwest were amplified, sequenced, and analyzed using Bayesian and Maximum Likelihood methods to generate trees from nuclear genes. Several single gene trees were compared with a species tree, which was generated by concatenating multiple nuclear marker genes. Results showed that trends found scattered through groupings of the single gene trees are clearly represented in the concatenated species tree with strong statistical support values for the nodes. Multi-gene trees seem to provide clearer depictions of the relationships within *genus Cottus*, and call into question existing species classifications.

An Economic Analysis of the Benefits and Limitations of Solar-Power Photovoltaic Technology Implementation by Consumers

Adrina Gabriel (Economics)

Consumers should be conscious of more general information about solar power modules. The stakes are high, as this technology is capable of contributing positively to our society and causing ripple effects into our economy. This research paper asks whether solar energy is proving to be sustainable and economically practical to its consumers. An answer is offered by establishing the framework for the debate regarding some of the major economic benefits and limitations, short-term and long-term, which a consumer may discover in implementing solar technology. Some research and development innovations will be included for the purpose of recognizing the future potential of this technology. Information was gathered for this study from agencies such as the USDE as well as from UN publications. The selection of sources for the study was based on their dependability, currency and consistency, and includes environmental journals, websites, print books as well as government data. Data from past years were mainly used for comparative purposes in order to help illustrate the impact of change. Findings indicate new avenues for further investigation on the topic, which further has the potential to help accommodate our society's dependence on electricity. To provide a more comprehensive review, I make an economic analysis of some of the major benefits and limitations used in framing the debate.

Oceans-21 and the Future of United States Ocean Policy: Understanding the Importance of the Monterey Bay Marine Sanctuary Area and Environmental Recovery Efforts

Adam Jorge (Political Science/Philosophy)

This paper serves to evaluate the history behind United States' ocean policy while simultaneously articulating the need for a comprehensive approach to federal ocean legislation. The health and vitality of national ocean territory is of key importance to communities, environment and industries dependent upon marine resources for their wellbeing. My research explores the potential effects legislation such as H.R. 21 (Oceans-21) could have in revitalizing, protecting and preparing the United States for oceanic changes through the next 50 years. Research methodology in this paper engages with case studies surrounding key oil spills in American waters, describes the marine sanctuary efforts in Monterey Bay and tracks the legislative process which left H.R. 21 to die in the U.S. Senate. Additional statistics and projections collected from government and marine research organizations have been assimilated into this project as a means to present argumentation for comprehensive ocean policy. American government responds to oceanic needs with fragmented, reactionary policy; and the United States' political system must incorporate proactive solutions to accommodate rapid environmental change or else communities and industries will face serious economic and natural resource losses. Understanding the economic and environmental need for U.S. ocean policy change should spur the federal government to protect its maritime industries and prepare the nation to face natural disasters. Additional research is urgently required in order to develop appropriate public policy solutions to ocean issues.

The Warrior's World: Where Anglo-Saxon Weaponry, Literature and Culture Interact

Marina Long (English)

This study examines the armor and weaponry depicted in Anglo-Saxon literature, comparing it to the weapons Anglo-Saxon warriors would really have used and explaining how this comparison sheds new light on both the literature and the culture as a whole. Essentially, it seeks to answer the question: How can we, as scholars of the humanities and social sciences, benefit from such inquiry? An investigation through the lens of New Historicism reveals the answer, namely, that we can learn a great deal not only about the works of literature studied in such an investigation, but about the culture which influenced this literature and was in turn influenced by it. This study also, as part of answering the above question, demonstrates the interconnectedness of various disciplines in the Humanities and Social Sciences, such as Art, Archaeology, History, and English, and the value of doing an interdisciplinary study combining one or more of these disciplines at their many points of intersection.

Perfecting a Super-Recipe: A Study of Critical Current Density in Pb-doped $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{11-\delta}$ Superconductors

Rodolfo López (Physics)

In recent times, substantial progress has been reported for high temperature superconducting (HTS) materials in thin film and wire forms of magnets, and fast-switch, narrow-band detectors. These applications will lead to major changes in communication, computer, and medical diagnostic technologies. However, the industrial applications of superconducting materials are often limited by the restraint of superconductivity at large currents or large magnetic fields. Although offering a more economically feasible reality compared to low temperature superconducting (LTS) materials, a key requirement for commercial applications of HTS materials is to have high critical current density at practical operating temperatures and magnetic fields. Obtaining a useful, high critical current density requires the materials to have strong current carrying capacities; unfortunately one major problem with HTS materials is that this flux pinning characteristic is not always as effective as with conventional LTS materials. Vast numbers of studies have shown that adding certain impurities to HTS materials can beneficially alter the flux pinning in HTS material. For this reason we have systematically studied the critical current density of the superconducting $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{11-d}$ compound by Pb doping. It has been found that doping a specific amount of lead into $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{11-d}$ does not alter the structure of the material, but raises the critical current density by four times. Further studies will include the analysis of the impact of Pb doping on other superconducting properties such as the irreversibility line, critical fields and magnetic relaxation. This may consequently result in an outline to the effects of chemical doping on other superconducting systems such as YBCO and TBCCO.

Suicide (*Jisatsu*) and Groupism (*Shuudan*) in Japan

Kelly Ann Olsson (English)

Japan has historically included suicide in its wartime practices and code of ethics. However, when many of the forms of suicide in Japan are compared, superficially they seem to contradict each other: for example, when *kamikaze* (suicide pilots) commit suicide versus when *ijime* (bullied students) commit suicide. The first type of suicide seems to be an aggressive, homicidal act, whereas the second seems to be an acquiescence to the will of bullies. This study therefore attempts to find commonalities between such apparently different examples, by providing a historical background of suicide in Japan; an overview of the prevalence of suicide in present-day Japan; and a discussion of the suicidal ideology that exists in present-day Japan. To provide a system for analysis, Japanese forms of suicide are categorized according to Emile Durkheim's theories of suicide. An in-depth examination demonstrates that the common thread connecting the various types of suicide in Japan is the unique and overriding sense of *shuudan* (groupism) prevalent among Japanese over many generations. Emile Durkheim's theories correlate closely with the conceptual framework of *shuudan*: whether they are unable to meet perceived social standards or feel trapped by social expectations, individuals who commit suicide feel that they cannot conform to *shuudan*. The impact of the internet on the practice of suicide in Japan has led to the rise of *shinjū* (group suicides), and in recent years a particular type of internet *shinjū*, "charcoal burner" suicides, has spread to Western countries, including America. Thus, a more profound understanding of suicide in Japan, with its high rates of suicide and a culture deeply-rooted in suicide as an intensely meaningful act, might help not only to elucidate the phenomenon of suicide generally but also its recent notable globalization.

A Comparison of the GPA and Graduation Rates of Students Transferring from Community Colleges and "Native" Students

Jessica Padilla (Psychology)

One of the primary missions of the community college is to help prepare students to transfer successfully to a four-year institution. A common public misconception about community colleges is that they provide students an inferior education to that of a four-year university. The present study examined whether community college transfer students are as academically successful as those who go straight to a four-year institution as freshmen (also known as "native students"). The research was performed at California State University, Stanislaus. Grade point averages (GPA) and graduation rates were examined in the two populations to measure academic success. Students surveyed were those who had attended community college and transferred to CSU Stanislaus as juniors. The transfer population group was compared to native students. Records from the two populations were examined over a five-year period for GPA and graduation rates over a five-year period: from 2001-2005 for the transfers and from 1999-2003 for the natives. The data were obtained from the Office of Institutional Research at CSU Stanislaus. Results revealed almost no difference in GPA between the two populations; transfers had a mean GPA of 3.17, compared to 3.19 for natives. However, there was a difference in

graduation rates, with transfer students graduating at an average of 75% and native students graduating at an average of 51%. This study also conducted a satisfaction survey of transfer students, in which 439 CSU Stanislaus undergraduate and alumni participated. The survey consisted of 21 questions comparing students' experience at a community college and at CSU Stanislaus. The results of this study helped to debunk the belief that community colleges offer an inferior education and therefore produce community college transfer students who are not as successful as their native peers. The data showed that transfer students are as successful as native students at CSU Stanislaus. Further research is recommended to determine whether the success rate of students transferring to CSU Stanislaus from community colleges has changed since 2005.

Learning How To Listen: Discovering Southeast Asian Ethnomedicine Practices and Beliefs

Verónica Sánchez (Anthropology)

As a research topic, this study explores the field of Southeast Asian Ethnomedicine. Ethnomedicine, a branch of Cultural Anthropology, is the study of how various cultures treat and prevent sicknesses and diseases, depending on their own beliefs and practices. This paper places particular emphasis on the Ethnomedical practices and beliefs of the Southeast Asian community in Modesto, California. The eventual outcome of this study will be a comprehensive and detailed tabulation of local Southeast Asian cultural plant-usage and treatment of sickness. This documented record will assist in the preservation of the elder generation's cultural identity, and provide younger generations a means of connecting with their heritage. A fundamental part of this research has been conducted at The Bridge Community Center in Modesto, documenting medicinal plant knowledge and usage by the Southeast Asian community the center serves. The Community Center calls upon volunteers in the various South East Asian communities to bring in plants they use, and elaborate on the usefulness of each plant. The plants are carefully identified and described, and the individuals who bring them in are interviewed about their journeys from Southeast Asia to America. The overall goal of the project is to present a complete record of each interviewee's journey to America, and to document the characteristics of the plants of which each possesses medicinal knowledge. It is anticipated that this research will result in a short film about participants' medicinal skills and recorded histories which can be used in workshops that introduce local doctors to traditional medicine philosophies. The completed study will contribute to future research on community outreach programs for immigrant groups from rural areas of developing nations, and will present a model which includes activities and roles for both seniors and young people within these groups.

**The Artist and the Spectre: Divine Vision in the
Earthly Work of William Blake**
Robert Searway (English)

This paper identifies the idea of the Artist in the poetry and art of William Blake as opposed to and yet incorporating his idea of the Spectre. The Artist becomes a visionary, transcending the sensory data of the Spectre, or human selfhood, but using that inspired sight cultivated from physical experience to promote transcendent vision in the production of art. Art becomes a unity between the Artist and Spectre to manifest Divine Vision in the physical world. The mythic figure Los represents the true artist and this paper traces the development of Los as a figure through Blake's early poems in Poetical Sketches to his greater depth in the "Book of Urizen", The For Zoas, and Jerusalem. Blake himself connects to Los as poetic archetype in Milton, and further analysis traces Blake's own union of Spectre and Artist in his life and work. This study contributes to the understanding of artist and the significance of visionary art in Blake's thought and work. In particular, Blake's work regards the idea of unity between transcendence and the physical world as manifest in the physical creation of art. The understanding of this depth of unity Blake presents has long served as a challenge to understanding the full significance of Blake's theory and production of art. Los, as archetype of the Artist, and representative of the human faculty of imagination, dwells in the physical world and at the same time transcends it through the active energy of the creative process. The relation of this artistic ideal to the body of Blake's work itself demonstrates the manifestation of the transcendent in the physical work through the Artist's act of creation.

***Higher Consciousness in African Grey Parrots: Jumpstarting Sentience
through Early Language Acquisition***

Breeann Wright (Cognitive Studies/Psychology)

Much is still unknown about consciousness in general, and specifically about sentience in the fields of psychology and higher consciousness, partially because it is frequently impossible to directly experiment on human beings. Gerald Edelman proposes that any display of sentience must have as a prerequisite primary consciousness, the ability to use and understand concepts, and that higher-order processes such as language, the concept of a self, and "concepts about concepts" function to raise primary consciousness to sentience; he acknowledges that numerous animal species display the former, but humans are the only living beings to display the latter. Could it be possible to wake sentience in a nonhuman animal possessing primary consciousness by teaching language at an early, species-appropriate age of language acquisition? Case studies done with feral human children, as well as research performed on various species of animals, especially the African grey parrot, in a series of experiments designed to teach an African grey language from a very young age, might indicate a positive answer. If this is the case, researchers in the field of consciousness will better understand the origins of consciousness, and further research needs to be undertaken to determine whether other nonhuman species might have access to sentience as well. This study outlines a proposed experiment to investigate the potential sentience of an African grey parrot.