8TH ANNUAL UNDERGRADUATE SYMPOSIUM FOR SCHOLARLY AND CREATIVE WORK

Sponsored by the
Vice Provost for Academic Affairs

Arts
Humanities
Life Sciences
Social Sciences
Physical Sciences & Engineering

APRIL 12, 2006

UNDERGRADUATE SYMPOSIUM FOR SCHOLARLY & CREATIVE WORK

SCHEDULE OF EVENTS

Tuesday, April 11, 2006

Symposium Judging
9:00 am – 5:00 pm
Davidson Conference Center
(Judges only--closed to presenters and general public)

Wednesday, April 12, 2006

General Presentations, Exhibits, and Displays
11:00 a.m. - 2:00 p.m.

Davidson Conference Center

Awards Ceremony & Reception
3:00 p.m. – 5:00 pm
Davidson Conference Center – Board Room

USC
UNIVERSITY
OF SOUTHERN
CALIFORNIA

April 12, 2006

Dear Members of the USC Community:

It is my pleasure to welcome you to USC's 8th Annual Undergraduate Symposium for Scholarly and Creative Work. The Symposium is designed to provide USC undergraduates with the unique opportunity to exhibit and share examples of their significant research, scholarly and creative work with the university community. Although the Symposium is modeled on a professional conference poster session, students may exhibit their work in a variety of ways, such as through posters, art exhibits, and electronic media. All undergraduates are encouraged to participate. An award ceremony recognizing the most outstanding works will take place at the end of the symposium and includes First Prize awards of $500 and Second Prize awards of $250 in each of the following categories.

- Arts
- Humanities
- Social Sciences
- Life Sciences
- Physical Sciences, Mathematics & Engineering

A panel of distinguished faculty will judge submissions in each category. After the judging, you are cordially invited to attend the Award Ceremony in Tyler Prize Pavilion at 3:00 p.m. where the winners will be announced.

We hope you enjoy USC's Undergraduate Symposium, which promises to be a highlight of the semester this year and in many years to come.

Sincerely,

Elizabeth Garrett
Vice Provost for Academic Affairs

The USC Undergraduate Symposium for Creative and Scholarly Work provides undergraduates with the unique opportunity to exhibit and share examples of their significant research and creativity with the university community. This year, we have received almost 100 submissions with participation from over 150 students. Students present work in a variety of ways, such as through poster/panel sessions, art exhibits, and electronic media. All undergraduates are encouraged to participate. For some students, the symposium serves as a culmination of work they have produced in partial fulfillment of a senior honors project, or a research project with faculty, both individually and as part of a program.

ACKOWLEDGEMENTS

On behalf of the Office of Undergraduate Programs and the Office of the Provost, we graciously thank USC faculty judges for volunteering their time. The success of the undergraduate symposium is largely due to the contribution of their expertise in the judging process. We would also like to give special thanks to the staff at the Career Planning and Placement Center for hosting all web and audio-visual submissions again this year. Thanks also to the USC Trojan Knights for their faithful service. Finally, thanks to the faculty advisors who have sponsored students in this year's Symposium. Your dedication to embrace teaching through inquiry-based learning has made this event as successful as it has been.

THANK YOU!!!

8th Annual Undergraduate Symposium for Scholarly and Creative Work

Table of Contents

CATEGORY

Arts

Category: Arts
Name: Jason Eppink
Submission Type: individual
Faculty Sponsor(s) & Department(s): Phil Messina, Cinema-Television Production
Format: Creative Work
Title: Lucinda: Bringer of Light
Abstract: An allegory about Truth wrapped in a surrealist tragedy, "Lucinda: Bringer of Light" follows a young girl who must find the one thing that can save her brother, Hadrian, from dying of Darkness. Along her journey, she finds a conch shell that can hold whispers, a business man with a raining umbrella instead of a head, and a book that allows her to fly.

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Category: Arts
Name: Julianne Gale
Submission Type: individual
Faculty Sponsor(s) & Department(s): Joseph R. Hawkins, Gender Studies; Philip J. Ethington, History
Format: Creative Work
Title: Who am I? Trans Identity in Los Angeles
Abstract: What does it mean to be transgendered? What are the unique challenges of being trans in Los Angeles?

As one trans L.A. resident put it, "They say you come to California either to find yourself or to lose yourself. I think I did both."

By examining the stories of five trans individuals in Los Angeles, this documentary illustrates both the hardships and the possibilities of being transgendered.

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Category: Arts
Name: Kevin Lax
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Erica Muhl, Musical Composition
Format: Creative Work
Title: Sonata for Clarinet, Viola, and Piano
Abstract: A contemporary musical piece that draws upon aspects from various musical traditions and techniques to evoke different emotions and imagery. I was particular intent on taking listeners to different realms through certain aural devices, hopefully encouraging the mind to explore its imagination and creative thoughts.

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Category: Arts
Name: Paul Dooley
Submission Type: individual
Faculty Sponsor(s) & Department(s): Frank Ticheli, Music Composition

Format: Creative Work
Title: Pomo Canyon Air, for orchestra
Abstract: The Pomo Canyon trail is located in Northern California along the Sonoma Coast and begins at a campground in a redwood grove two miles inland from the Pacific. It ascends about 300 feet and gives magnificent views of the ocean, before descending to the shore at Shell Beach. Pomo Canyon Air, for orchestra, is not an attempt to translate the visual into the aural, but is a piece composed through the memory of this place. I often find memories even more inspiring or emotional than the experience itself. I visit Pomo Canyon often when I go home, and each time the subsequent memory of it is stronger, and is a source of creativity. Thus Pomo Canyon Air is about the feelings I associate with this beautiful area when I am unable to experience it firsthand.

Pomo Canyon Air uses harmonic environments derived from the acoustic scale. This scale is based on a set of the upper partials in the harmonic series, a phenomenon of nature. This scale can derive two other scales often talked about in music theory: the melodic minor ascending scale and altered dominant scale. The combinations of these three scales form a harmonic and melodic foundation.

The piece is also a personal exploration in orchestration. Whether it be the brass blowing open air through their horns or the timpanist rolling on an upside down cymbal placed on a timpani, the orchestration is always inspired by my experience of this place I wish to share with the listener.

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Category: Arts
Name: Rebecca Wardell, Ellen Macfarlane, Brian Boles
Submission Type: group
Faculty Sponsor(s) & Department(s): Eunice Howe, Art History
Format: Creative Work
Title: Exploring the Sistine Chapel: A Digital Narrative
Abstract: Utilizing new technologies, the project explores the artistic decoration of the Sistine Chapel. The Renaissance chapel, located at the core of the Vatican Palace, is the site of some of the most memorable paintings in the world, not the least of which are Michelangelo's ceiling frescoes. Our research team, in collaboration with Professor Eunice Howe (Art History), has produced interactive digital media that facilitates in-depth study of the art and architecture of the Sistine Chapel.

Digital imaging permits close examination of the chapel's frescoes, sculpture, and structural design. It also reveals features that are frequently overlooked such as the marble pavement, tapestries and choir. It offers visual evidence for projects that were never carried out, for example Michelangelo's early plans for the ceiling and Last Judgment. In addition, the viewer/user witnesses changes in the chapel at key moments, and has the opportunity to examine individual projects or the transformation of the interior over a period of eight decades. This digital production is not a reconstruction, but a gateway into specific features of the Sistine Chapel. Views are accessed through an index linked to artists, subjects, and themes. One can compare or study minute details through pop-up windows or zoom in on specific features. Unlike the pages of

the book, interactive media offers opportunities for viewing that are flexible and almost limitless. The results are appropriate for the classroom as well as for scholarly use, and provide a model for other digital projects in the arts.

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Category: Arts
Name: Polly Gordon
Submission Type: individual
Faculty Sponsor(s) & Department(s): Joel Tauber, Fine Arts
Format: Creative Work
Title: An American Girl
Abstract: As a Visual Anthropology major I am interested in the intersection between video Art, cinema and ethnography. This piece of work is about identity. It uses visual means to explore some of the dominant themes that have been present in my life. Whether this is art or ethnography is for the viewer to decide. I am one to suggest however that when we most authentically represent the self, we are most authentically describing our culture. It is from this premise that I created An American Girl.

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Category: Arts
Name: Claudia Zhang
Submission Type: individual
Faculty Sponsor(s) & Department(s): Zoey Wu, East Asian Languages and Cultures
Format: Creative Work
Title: Ancient Modernism
Abstract: The history of Chinese calligraphy, or Shu Fa, is as long as that of China itself. The origins of Chinese characters can be traced to inscriptions on bones and shells, the earliest identifiable characters belonged to the Shang Dynasty (16th-11th century BC).

Through the centuries Chinese characters have changed constantly and are mainly divided into five categories today: seal, official, regular, running, and cursive. Seal characters, developed during 11th century-711BC, are the earliest form of standardized character writing. The regular script, which is architectural in style, is most commonly practiced today.

Calligraphy was once entirely Chinese, but as Chinese culture spread to Korea, Japan, and Singapore, calligraphy became a unique feature of the Oriental art. Today, calligraphy is even wildly accepted by the West; as Picasso once said, "Had I been born Chinese, I would have been a calligrapher, not a painter." Thus, many calligraphic elements are being adopted by modern western art.

Calligraphy is an abstract and expressive art. According to an old Chinese saying, "the way characters are written is a portrait of the person who writes them." Unlike painting, which depicts pictorial images and realistic beauty, calligraphy attempts to express the abstract beauty of lines and rhythms, a parallel concept seen in Western modern art. Calligraphy is a reflection of a person's emotions, integrity, character, accomplishments, intellectual tastes, and approach to life. Chinese characters convey ideas and are regarded as the most abstract and sublime art form.

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Category: Arts
Name: Camille Newbern
Submission Type: individual
Faculty Sponsor(s) & Department(s): Sharon Hays, Sociology/Gender Studies
Format: Creative Work
Title: LA Girl
Abstract: LA Girl is a self portrait of living in the urban, edgy, confusing world of Los Angeles. It also demonstrates the importance that the hip LA creativity has on the design world. In each painting, the girl shows no personal ID except with her accessories.

In the full body portrait, the girl lives up to the ideal LA image--overly slender and hiding behind the black out shades and perched on her sleek wheels. There is no survival in LA without your car. And it better be hot, as it is almost like an extension of your body. The sunglasses represent the "summer every day" lifestyle.

The legs painting reflects the "must have" to be cool--designer everything and endless consumption. The casual gait reflects the fun, adventure and excitement in LA.

In both paintings, the girl is alone...she is out there in the densely populated city...but always alone. Her soul is not reflected, it is about "the look". Focus on the girl in both pieces is lost, as she is set among the intricate and mixed pattern collages--representing the many conflicting choices in LA--glamour, edgy, revolutionary, creative.

The paintings employ bold, strong, shiny, deep hued colors to demonstrate the tough, but vibrant environment. There is no blending or softness...LA is about survival of the fittest. The LA girl lives a fast, intense life. "The look" and being discovered is all important. Confusing choices, distracting details. There is no room for softness, reflection, or rest.

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Category: Arts
Name: William Zimmerman, Matt Jung, Cassie Peterson, Emily St. Amand
Submission Type: group
Faculty Sponsor(s) & Department(s): Aaron Serfaty, Jazz Studies, Thornton School of Music
Format: Creative Work
Title: Afro-Peruvian Jazz
Abstract: Our group has been researching and learning traditional Afro-Peruvian music, as well as mixing the rhythms of traditional Afro-Peruvian music with jazz to create a hybrid music, 'Afro-Peruvian Jazz'. We have been invited to perform at the Peru International Jazz Festival in Lima, and will be there between April 1 and April 10. We have received funding for travel to Lima in part by the USC Student Senate Academic Research Fund. We will document our experience in learning this music while at the festival, as well as prior to the festival, and present our final result at the symposium.

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Category: Arts
Name: Roger Zare
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Rick Lesemann, Music Composition
Format: Creative Work
Title: The Other Rainbow
Abstract: In December of 2004, I entered the New York Youth Symphony's First Music competition, a

program that awards three orchestral commissions to composers under 30 each year, all of which are to have premieres in Carnegie Hall. A few months later, I got a call saying that I was as one of those three composers. "The Other Rainbow" is the product of the commission, written over the summer of 2005. This is only my second serious work for full orchestra, and it gave me an opportunity to expand my musical horizons in all directions.

My fascination of extended instrumental techniques and non-standard practices in notation significantly influenced "The Other Rainbow." I explored new sonorities and took risks in my orchestration, risks which paid off. My style looks beyond basic melody and harmony as vehicles of expression and seamlessly integrates my unique palate of textural elements to provide a sort of musical scenery. "The Other Rainbow" does not have an underlying programmatic storyline, but it still speaks to the audience as if it were a narrative. The emotions that it evokes are real.

Through listening to "The Other Rainbow," I hope to transport my audience to another world. From the frantic and fragmented opening to the serene and delicate middle section to the emotional rush driving the piece to its expansive end, I hope to give each listener a rich, emotional, and unique experience.

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Category: Arts
Name: David Black
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dennis Thurmond, Music - Keyboard Studies; Brian Shepard, Music
Format: Creative Work
Title: Showcase of interactive and electronic music through dance
Abstract: I am creating a set of pieces featuring live interactive music through dance. Dancers will be wearing colored clothing and will be creating live electronic music by way of programs I have written in the MAX/MSP music programming language. The dancers will perform two pieces. The first starts with a blank palette of empty patterns, and by way of video input into the custom computer program, the dancers gradually begin filling these patterns with notes based on their movements in the dance space. Eventually many different patterns will be generated using various changing electronic sounds occupying all parts of the sonic spectrum. The dancers have control over adding, changing, and deleting notes. The second piece is an electronic version of a beatnik poetry jam, in which the intensity of the dancers' movements control convolution and evolution of recorded bits of poetry, jazz bass and drum samples.

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CATEGORY

Humanities

Category: Humanities
Name: Nathan Go, Nancy Huang, Sara McDonald
Submission Type: group
Faculty Sponsor(s) & Department(s): Anna Lubowicz, Linguistics
Format: Field Research
Title: What's in a Polish Nickname?
Abstract: Allomorphy has been frequently examined using the framework of Optimality Theory, a phonological theory in which outputs are evaluated by violable and rankable constraints. In our study, OT provides for an output-oriented analysis of Polish nickname formation.

We determined that a large group of Polish nicknames can be explained through allomorphy. Two categories are examined. The first category is formed by the /ś/ and /uś/ suffixes, where names such as "Adam" and "Piotr" become "Adaś" and "Piotruś." The second category is formed by the diminutive suffixes /ek/ and /k/, where names such as "Karol" and "Agata" become "Karolek" and "Agatka."

We propose that these types of nicknames can be explained in terms of allomorph selection. In the case of /ś/ and /uś/, the allomorph is selected by the number of syllables. The goal is to obtain a disyllabic output. If the base is one syllable, the nickname will select the allomorph /uś/ in order to satisfy the two-syllable constraint. In the case of /ek/ and /k/, the allomorph is selected by the syllable structure. The goal is to avoid complex codas in the output form. If the name ends in a consonant, the nickname will select the affix /ek/ in order to avoid more than one consonant at the end of a syllable.

We have submitted this research to academic conferences and plan to publish an academic paper. This project contributes to our understanding of nickname formation and the study of allomorphy.

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Category: Humanities
Name: Michal Zuckerman
Submission Type: individual
Faculty Sponsor(s) & Department(s): Tom Seifrid, Slavic Languages and Literature
Format: Creative Work
Title: Aesthetic Bliss in "Lolita"
Abstract: My primary goal in analyzing the novel "Lolita" was not to focus on the often hypothesized mentally disordered facilities of one: Vladimir Nabokov but rather on his style of writing and how he translated not solely his technique but also his complex language usage from his native Russian tongue into his first English piece. As

Nabokov was a notorious aesthete, I chose to delve headfirst into the issue of color and how Nabokov utilizes the visible spectrum through nouns, adjectives and prepositions, among others, to paint a picture out of black and white type. Although a wide array of shades and pigments are mentioned, I narrowed my paper topic down to three specifics: pink, red and violet, connecting them to the main characters as well as to each other. I felt an importance in bringing this easily ignored aspect of Nabokov's work to light because many readers do not realize there is more to literature than the obvious plot.

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Category: Humanities
Name: Joshua Hornstein
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dallas Willard, Philosophy
Format: Senior Honors Project
Title: The Moral Dimensions of Professionalism in Medicine
Abstract: It is no secret that the image of the doctor in the mind of the public and in the profession itself is deteriorating. There is widespread concern today among conscientious physicians, educators, ethicists and the general public that medicine is becoming "deprofessionalized," that the profession is losing its commitment to the kind of character traits necessary for protection of the welfare and interests of patients in the medical field. In the contemporary managed care era, too much is taken for granted about the way physicians conduct themselves. There is a need to reexamine the sources of the normative principles which should govern the behavior of physicians as professionals and how these normative ideals will be taught to future physicians. The need for this reexamination is apparent in the concern expressed by society who call for a more "humanistic profession."

In this paper, I will provide a firmly grounded ethical derivation of the moral dimensions of professionalism and how this knowledge can be incorporated into the premedical curriculum. I will arrange my discussion into four main parts: (1) defining and reviewing the history and decline of 'professionalism'; (2) a revived attempt of placing a virtue ethics with professional education; and (3) a proposal for teaching the virtues and good human conduct to pre-medical students which are harmonious with the medical profession. Such an inquiry will hopefully help to recognize the importance of cultivating good human conduct and its necessity in redefining the terms of medical professionalism.

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Category: Humanities
Name: Georgiana Nikias
Submission Type: individual
Faculty Sponsor(s) & Department(s): Lynn Swartz Dodd, Religion
Format: Creative Work
Title: The Lost Shawabti: A Scribe's Ancient Egyptian Funerary Figurine
Abstract: This ancient Egyptian funerary figurine is called a shawabti and once occupied the tomb of a scribe. The job of the ancient Egyptian scribe was a very important profession because the scribes were the only people in ancient Egypt who know how to read and write—they wrote all of the Egyptian hieroglyphs on tomb walls, papyri, and funerary figurines such as this on. This shawabti and other funerary

figurines assisted the dead, but how they assisted the dead changed over time. Little is known about ancient Egyptian funerary figurines, so this project not only tries to answer whom this figurine was for and when it was made, but also if this type of funerary figurine had a different meaning for the ancient Egyptians than the others before and after it. Though this shawabti is an unprovenanced artifact significant research can still provide valuable information about ancient Egyptian life and culture.

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Category: Humanities
Name: Georgiana Nikias, Hannah Marcuson, Kristin Butler
Submission Type: group
Faculty Sponsor(s) & Department(s): Lynn Swartz Dodd, Religion
Format: Creative Work
Title: Khirbet Mazra'a: The Lost Excavation
Abstract: Khirbet Mazra'a is an archaeological site in Israel that was excavated by USC professors and students in 1968 and funded by the university. When they returned from their excavation they did not publish the notes or finds they excavated. We don't know why—one possibility is that they didn't have the time or the continuing funds. We decided to take it upon ourselves to slowly piece together this site: from who lived there to what time period it was occupied. To answer these questions we have begun by researching the top three layers of the first Area excavated at the site. We have divided our material into three sections, one for each of us to research: architecture, pottery, and Turkish pipes. By collaborating the research we have done in these three sections we have begun to piece together the story that Khirbet Mazra'a has to tell.

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Category: Humanities
Name: Shaun Lea
Submission Type: individual
Faculty Sponsor(s) & Department(s): Lynn Swartz Dodd, Archeology
Format: Creative Work
Title: Andean Dye Project: The Mysteries of Textiles
Abstract: Archeology attempts to uncover the mysteries of the past allowing for greater insight into the present and future. Unfortunately, unearthing and analyzing artifacts of the past often leads to their partial or complete destruction. Therefore, the goal of the Andean Dye Project is to extract as much information as possible from ancient textiles without disturbing or destroying them in any way. With that in mind, I use extremely sensitive and accurate analytical chemistry techniques, namely HPLC, to analyze dyes from various ancient textiles, which provides important information on the migration and trade of different ancient civilizations. My work focuses specifically on textiles from western South America, which are of great interest due to their abundance and their importance to ancient South American civilizations. The sophistication of HPLC techniques allows for dye analyzation of an entire textile with a mere 1mg sample of thread, less than one millionth of an entire textile. Therefore, a small fraction of thread can tell us exactly what plant, insect, or mineral was used in a certain dye. Currently our research is focused on developing the best methods to extract

and analyze different types of dyes. Presently, I am investigating the best combinations of acids, temperatures, and heating times for certain sub-sets of dyes. So far I have determined that heating samples for 30 minutes, at 100 degrees Celsius, while immersed in 2M TFA, is the best extraction method for insect-based dyes, and more research is being conducted for plant-based dyes.

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Category: Humanities
Name: Ashley Sands
Submission Type: individual
Faculty Sponsor(s) & Department(s): Lynn Swartz-Dodd, Religion
Format: Laboratory-based Research
Title: Retro technology in the Assyrian Empire: learning from conquered peoples
Abstract: This research centers on the interaction of ancient technology, aesthetics and imperial decision-making in the Assyrian empire, which was the largest empire before Rome. 2800 years ago Assyria founded a massive city in the northernmost reaches of the empire, at a site soon to be flooded by a Tigris River dam, Ziyaret Tepe in Turkey. The Assyrian governor and soldiers were feared greatly. They forced villagers into agricultural colonies, clear-cut forests for huge building logs, and exacted harsh taxes to feed both the Assyrian war machine and its growing population in Assyria's heartland (northern Iraq). Even though the Assyrians were there as conquerors, they could not help but be influenced by those they subjugated. This research project investigates how the local craft traditions and aesthetic preferences in the periphery impacted Assyria itself. Before I undertook this research it was not known: (1) what metal recipes were used for bronze artifacts in the region; (2) why multiple recipes were used side-by-side; or (3) where the raw materials were sourced. My research uses X-ray Florescence (XRF), scanning electron microscopy and electron dispersive X-ray (EDX) analysis on samples from ancient kilns and furnaces. Now it is possible to address issues never before understood, such as seemingly "retro" aesthetic decisions in Assyrian craft production and the material resource needs that drew the Assyrians northward from their cities (such as Nineveh in modern-day Iraq) and into conflict with one of their most intractable enemies, the kingdom of Urartu.

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Category: Humanities
Name: Leanne Joyce
Submission Type: individual
Faculty Sponsor(s) & Department(s): Boris Wolfson, Slavic Languages and Literature; Steve Anderson, Cinema/TV & Institute for Multimedia Literacy
Format: Creative Work
Title: From Sobornost to Socialism: Transporting the Soviet Era
Abstract: Khomyakov created the term sobornost to as a means to explain the way Russian people function. This idea of a utopia lies in the concept of total unity and harmony comprised of individual beings. The term becomes an ideological watchcry through the way several Russian thinkers tried to conceptualize the relationship of the individual and the community, the spirit of sobornost. Over time, as thought evolved, the "ideal unity" evolved from sobornost, unity in the congregation of The Holy Trinity, into the spirit of Socialism, unity of society for the

society's sake. The art of the Soviet era, an era that tried to break with the past, is replete with old thinking. The poster for Viktor Turin's documentary Turksib, central to this presentation, has a Constructivist style, which was designed as a tool for social influence through fusion of art and politics. This particular poster represents the ideal man, who is "one and many," which is unity: the self in the whole. Ideas from the past rise to the surface in the poster, portraying a construction that is as much tied to its past as to its progress.

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Category: Humanities
Name: Kate Peck
Submission Type: individual
Faculty Sponsor(s) & Department(s): Professor Lisa Bitel, History Department
Format: Senior Honors Project
Title: Áed mac Bricc - saintly virtue in early Medieval Ireland
Abstract: Most people have heard of the medieval Irish Saints Patrick and Brigid; many have heard of St Kevin and St Brendan; some have heard of St Finnian and St Columbanus; but few have heard of St Áed mac Bricc. He didn't drive away snakes, but he could summon runaway cattle in an instant. He didn't make a dangerous voyage over the ocean in a boat, but he did, from time to time, ride a chariot carried by angels for great distances. He didn't pierce a king's foot with his staff, but he did drive over a king with his chariot three times in a row. (And on purpose, too!) Áed was not a great man of letters or the head of a powerful monastery, yet he was greatly revered in medieval Ireland. Why is he virtually unknown now, while other medieval saints are still objects of world-wide veneration? Why did some forms of Christian veneration fall out of style over the centuries while others persisted? I will translate and explain the written biography (Vita) of Saint Áed to help answer these questions about Christian belief and practice over the centuries.

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Category: Humanities
Name: Jody Sadornas
Submission Type: individual
Faculty Sponsor(s) & Department(s): Lynn Swartz- Dodd, Religion
Format: Field Research
Title: Crusader Frying Pans Made by Infidels: outsourcing in antiquity.
Abstract: Experimental archaeology uses the pragmatic strengths of ethnographic research and the probative abilities of archaeometric analysis to recreate objects so that the complex relationship between technology and society and between craftspeople and the artifacts they produced can be better understood. This project focuses on the creations of Islamic potters who crafted ceramic tableware used by 12th century AD Crusaders who had come to break Islam's hold on Christianity's holiest places. In particular in this project, a Crusader frying pan reveals the dependence of the Crusaders on the very people they sought to conquer for the most basic of daily necessities.

This project focuses on pottery-making 800 years ago. Normally, potters make many complex choices for even the simplest of pots. These choices are intuitive to them but they are gold mines of data for archaeologists. In this project, we have recreated ancient vessels, in order to understand the complex processes of ceramic-ware production–

from the choosing a clay source, to preparing it, creating a glaze, applying it, and firing the object. Every single pot used in Crusader sites reflects an ancient negotiation based on supply and demand, raw material availability and finished product desirability, foreigners' and local residents' willingness to interact. My research is able to identify various ceramic techniques used in the creation of a particular type of ceramic vessel from medieval Israel through the reconstruction of its manufacture. Through this research, I am able to better understand the necessity and complexity of interactions between people who considered the other infidels.

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Category: Humanities
Name: Cameron Parkins
Submission Type: individual
Faculty Sponsor(s) & Department(s): Boris Wolfson, Slavic Languages and Culture
Format: Field Research
Title: Journey to Wars
Abstract: "Journey to Mars" deals with a 1920s era Soviet film poster that depicts a boy shooting off towards Mars. While on the surface level the poster can be read as merely an advertisement, deeper analysis reveals many philosophical, social, and political issues that are both current to the time period and also can be traced through previous history. Primarily, utopian ideas are exposed and analyzed. The main tension in the poster arises from the push towards utopia and what that means, and has meant for hundreds of years, in Russian culture and civilization.

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Category: Humanities
Name: Gretchen Leach
Submission Type: individual
Faculty Sponsor(s) & Department(s): Lynn Swartz-Dodd, Religion
Format: Field Research
Title: Khirbet Mazraa
Abstract: This project is shed more light on the type, purpose, and origins of the buildings in Area IV of the Khirbet Mazraa site, which USC students excavated roughly 40 years ago. Many of the excavated materials were left undocumented and un-researched, until now. I intend to resurrect old photos, reassemble ancient pottery shards, and dig through the buried past to tell the story of the old inhabitants of the Khirbet Mazraa site, and the buildings they inhabited.

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Category: Humanities
Name: Celeste DeFreitas, Brian Ronge
Submission Type: group
Faculty Sponsor(s) & Department(s): Dr. Rachel Walker, Linguistics
Format: Laboratory-based Research
Title: Silent Speech Gestures in Kinyarwanda
Abstract: Kinyarwanda, the primary language of Rwanda, exhibits a phenomenon called consonant harmony, which causes certain consonants within a word to become more alike one another or "assimilate." Kinyarwanda's consonant harmony involves fricative consonants. When "sh" or "zh" occur in a word, it causes preceding "s" and "z" to be produced as "sh" and "zh," respectively. For example, when the suffix "–iisha" is attached to "sas," meaning 'make the bed,' the word becomes "shashiisha." In Kinyarwanda, "sh" and "zh" are retroflex consonants,

produced with a retracted and up-arched tongue tip posture. This differs from "s" and "z," in which the tongue tip is lower and forward.

Previously, only auditory data were available on Kinyarwanda, which provided limited information about consonant production. Our study examines Kinyarwanda consonant harmony by using an articulograph, which uses magnetometry to track the tongue tip movements of a native speaker.

An issue that Kinyarwanda's consonant harmony presents is that the assimilation can occur even when another consonant comes between the assimilating fricatives. For example, in the word "bashamaazhe" an "m" intervenes between retroflex "zh" and assimilated "sh." Previously it was postulated that the sounds affected in Kinyarwanda's harmony involved two separate retroflex gestures, i.e. one each for "sh" and "zh." We hypothesize that Kinyarwanda's harmony may actually involve a single, continuous retroflex gesture carried from "sh" to "zh" through intervening sounds but not heard during them. By measuring the articulograph data, we can gain more insight into how and why this type of harmony occurs.

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Category: Humanities
Name: Brigid McManama
Submission Type: individual
Faculty Sponsor(s) & Department(s): Prof. Stephanie Bower, Writing Program
Format: Field Research
Title: Imag(in)ing Race After Slavery: Race and Service in the White House

Abstract: This project addresses the visual representation of race through photography, and in particular, the tradition of representing black Americans in positions of domestic service. This project focuses on the 2004 photo exhibition "Portraits from the President's House" at the White House Visitors Center that captures individual members of the residence staff within the workplace. What is most striking to me about the images from this exhibition is the apparent racial disparity in the occupational status, as well as the photo techniques used to capture the black versus white staff members. I argue that these methods of representation replicate relations of racial inequity that stem from slavery, and shore up the ideology that slaves were born to serve in the homes of whites. Thus the non-visual realities of white supremacy are supported and propagated by these visual representations of racial inequity. Therefore, I argue that these photographic representations of blacks in positions of domestic service operate as a continuum of the ideology that supported slavery and the conditions of white supremacy, and that continues to divide labor along racial lines, for such images work as visual indices forwarding the privileged status of whites over blacks, masters over slaves.

Drawing on this exhibition, I assembled a collection of photographs that demonstrate the issues of representation addressed in this project: (1) the visual representation of black Americans in positions of domestic service, and (2) the photo techniques used to mark and accentuate racial difference, as well as propagate white supremacy.

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Category: Humanities
Name: Spencer Kassimir
Submission Type: individual
Faculty Sponsor(s) & Department(s):
Bruce Zuckerman, Religion
Format: Creative Work
Title: Evoking Empathy
Abstract: I have created four short films each of a different genre in order to see how and if viewers evoke empathy from seeing various characters in different but similar states.

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CATEGORY

Life Sciences

Category: Life Sciences
Name: Stephanie Bughi, Jatturong Wichianson
Submission Type: group
Faculty Sponsor(s) & Department(s): Donna Spruijt-Metz, Health Promotion & Disease Prevention; Selena Michel, Health Promotion & Disease Prevention
Format: Field Research
Title: Prevalence of Night Eating Syndrome Among College Undergraduate Students
Abstract: Stress is common among college students and has negative consequences on both physical and mental health. Smoking, drug or alcohol abuse, overeating are frequently used by students to cope with stress. OBJECTIVE: The goal of this study was to assess the prevalence of stress and night eating syndrome (NES) among USC undergraduates, and the correlation between them. METHODS: Stress was measured by using the General Well-Being Scale (GWBS), which is a self-reported 18-item questionnaire with scores ranging from 0 to 110. A score below 72 reflects stress. Positive well-being is defined by a score between 72 to 110. NES was tested using the Night Eating Questionnaire (NEQ), with scores ranging from 14 to 70. A score of 14-52 was consistent with night eating pattern, while a score above 52 was normal. Thirty-four students from 1st to 4th year were studied. Data was analyzed using the SPSS program, One-way ANOVA and Pearson correlation test. RESULTS: Among the students tested 17/34 (50%) self-reported stress, and 8/34 students (23.5%) reported night eating pattern. This was more prevalent among those who reported stress. SUMMARY:1) Stress is prevalent among college students as 50% of tested students self-reported stress. 2) One out of four students experienced night eating pattern, which correlated to stress ($p=0.002$). CONCLUSION: Abnormal eating pattern is used to cope with college stress, which may explain the role of stress in the development of obesity.

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Category: Life Sciences
Name: Alexandria Harrold, Michael McCaughan
Submission Type: group
Faculty Sponsor(s) & Department(s): Jack Turman, Jr., PhD, Center for Premature Infant Health and Development, Biokinesiology and PT, Cell and Neurobiology
Format: Laboratory-based Research
Title: The Impact of Perinatal Brain Injury on Feeding Development in Rats
Abstract: Mammalian feeding behavior develops through a complex integration of motor, sensory, autonomic, and cognitive neural networks. Infants with perinatal brain injury have a high

incidence of feeding disorders that are associated with postnatal growth deficits. These growth deficits, in combination with perinatal brain injury, have been linked with poor neurodevelopmental outcomes in these infants. The etiology of these feeding disorders is complex because perinatal brain injury can impact numerous neural circuits that underlie the development and expression of normal postnatal feeding behaviors. The purpose of this study is to develop a rodent model of neonatal HI brain injury that can be used to study the effects of hypoxic-ischemic (HI) injury on feeding-related behaviors, and facilitate the development of new intervention strategies for feeding disorders in human infants.

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Category: Life Sciences
Name: Kimberly Tenggardjaja
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dennis Hedgecock, Biological Sciences; Suzanne Edmands, Biological Sciences
Format: Laboratory-based Research
Title: The introgression of cattle genes in the bison of Santa Catalina Island
Abstract: Bison (Bison bison) from different mainland areas have been introduced to the Catalina population to improve herd genetics. In the 1900s, bison and domestic cattle (normally male bison with female cattle) were crossbred in an attempt to create a better beef breed. Since sources of imported bison are not well-documented, it's difficult to determine the population's genetic purity. The objective of this study was to analyze mitochondrial DNA (mtDNA) from Catalina bison to detect hybridization with domestic cattle (Bos taurus). The advantages to analyzing mtDNA are that it is maternally inherited, is present in multiple copies in an organism, and does not undergo recombination. This study specifically looked at the displacement loop, which is a control region in mtDNA. The Catalina Island Conservancy provided 98 bison blood samples, and steak samples were used as cattle controls. The entire displacement loop was amplified via Polymerase Chain Reaction.

Five restriction enzymes (ApoI, BstNI, StyI, BsrGI and ScrFI) were used to detect introgression, and the digested products were run on agarose gels. Of the 98 samples, only 87 could be scored for all five enzymes. Of these 87 samples, 44 were cattle and 43 were bison. Since a considerable percentage of the bison sampled for this study appear to be cattle hybrids, a conservation dilemma arises, which could entail management implications as to whether the bison should be removed from the island. Not only are bison a non-native species to Catalina, but they also have significant ecological impacts.

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Category: Life Sciences
Name: Toan Vo, Christopher Der
Submission Type: group
Faculty Sponsor(s) & Department(s): Will Berelson, Earth Sciences
Format: Laboratory-based Research
Title: Carbonate-Associated Sulfate concentrations of varying calcitic rock formations
Abstract: Carbonate-Associated Sulfate concentrations in several calcitic rock formations along the side of Walker Lake of Nevada were measured to determine the chemical conditions in

which the structures were formed and to relate this to environmental conditions (e.g. lake level). The sulfate content of Walker Lake water has been shown to correlate with lake level, and has also been shown previously that CAS is positively correlated with the sulfate content of water from which calcite precipitates. Our preliminary results show that for the dendrite, there is about 2000 parts Sulfate per million parts of Calcite (ppm) and about 2500 ppm for the Cauliflower formation. We have yet to formulate definitive numbers for the Stromatolite and Mecca morphologies. In addition, the results have not yet been related to the location in which these different structures were formed. Depending on their placement along the lake, we can expect an associated CAS concentration. For example, structures near the surface would probably have a lower CAS concentration since high lake levels are needed for their formation. High lake levels are usually correlated with lower Sulfate concentrations in the water and therefore a lower CAS concentration in the rock. As the results are being processed we expect to find interesting correlations between the CAS concentrations with their locations and water level also. All these factors are interrelated. The CAS concentrations results we have so far are a result of using a slightly modified version of the Tabatabai method which measures sulfate in water samples.

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Category: Life Sciences
Name: Christopher Nguyen
Submission Type: individual
Faculty Sponsor(s) & Department(s): Valter Longo PhD, Gerontology/Alzheimer's Research
Format: Senior Honors Project
Title: Deletion of Sch9 Protects Against Age-Dependent Genomic Instability
Abstract: One prominent theory of aging states that the declining force of natural selection after an organism reproduces causes evolution of metabolic pathways promoting growth in early life but aging and decline in later life. A pathway supporting this theory is the conserved nutrient- or insulin/IGF-1 pathway which has been shown to limit several model organisms' lifespans, in part, by restricting stress-resistance and antioxidant mechanisms. Other cellular processes are likely to be involved but have not yet been identified. Particularly, the pathway's role in regulating genomic instability remains to be elucidated. This project examines yeast S. cerevisiae to address this issue. It determines if the lack of Sch9, functional homologue of human Akt found downstream of IGF-1, increases longevity by protecting yeast against age-dependent mutation frequency and undifferentiation. Furthermore, it establishes if lack of Sch9 reverses the short lifespan and high mutation loads exhibited by yeast lacking DNA repair enzyme Sgs1, a RecQ helicase homologous to human BLM and WRN proteins involved in Bloom's and Werner's syndromes. Results indicate that deletion of Sch9 from wildtype cells prevents age-dependent increases in frequency of point- and small insertion/deletion mutations, gross-chromosomal rearrangements (GCRs), and undifferentiation. Moreover, lack of Sch9 in Sgs1 deficient yeast reverses their short lifespan and high levels of point mutations and GCRs. These findings suggest that the glucose/Sch9 pathway causes aging by limiting genomic maintenance. Such results may

have profound implications for human aging and age-related cancers.

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Category: Life Sciences
Name: Christopher Brown
Submission Type: individual
Faculty Sponsor(s) & Department(s): John Tower, Ph.D., Molecular and Computational Biology
Format: Laboratory-based Research
Title: Alt. of circadian rhythms in D.melanogaster by exogenous chemical administration
Abstract: The intrinsic circadian system in eukaryotes is the "internal clock" that governs activity on a roughly 24 hour cycle. The levels of activity are correlated to the temporal expression of genes and the concentrations of certain hormones. Although this complex molecular system may maintain a certain level of autonomy, certain factors have been shown to gradually alter the cycle (i.e. prolonged absence of light). Using Drosophila melanogaster as a model, the effects of chemical-induced stress on circadian rhythm were analyzed at different intensities. At low concentrations of chemical X, there was an overall increase of measured activity and a leveling of the characteristic rises and falls of observed flies' circadian rhythms. Thus, there was a minimizing effect on the difference of activity in the periods of the day of high and low activity. Similar results were reached with chemicals Y and chemical Z that circumvented and disabled the intrinsic pathway responsible for neutralizing the stress caused by chemical X, respectively. Also, these modifications in activity were recorded in transgene flies triggered to produce higher endogenous amounts of a certain family of chemicals, including chemical X. This study suggests that the overall increase of activity by chemical manipulation indicates the suppression of the circadian system's fluctuate nature.

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Category: Life Sciences
Name: Mahira Kakajiwala
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Jed Fuhrman, Marine Environmental Biology
Format: Laboratory-based Research
Title: Spatial and Temporal Diversity of Marine viruses in the San Pedro Channel
Abstract: Viruses in surface waters of the ocean frequently reach concentrations upwards of ten billion per liter and account for ~50% of the mortality in their bacterial hosts. Viral infection is believed to be a host specific, density-dependent process and thus should influence bacterial population structure in a predictable fashion. Specifically, viruses should kill the winner of interspecific competition, thus increasing overall diversity. This hypothesis, referred to as "kill the winner", has been shown to accurately describe virus:host dynamics in chemostat experiments but virus:host interactions in the open ocean appear more complex. Recent studies have demonstrated marine viruses have a broader host range then previously believed and rare bacteria may also be infected. Thus, more work is needed to better understand virus:host dynamics in marine systems. I addressed these issues by monitoring cyanophage and cyanobacteria populations in the San Pedro Channel on a variety of temporal and spatial scales. Cyanophage viral

capsid proteins (g20) were sequenced and cyanobacteria hosts were monitored via ARISA, a molecular community fingerprinting technique. Results reveal new insights into the observed temporal/spatial patterns of marine viruses and their hosts in a natural marine environment.

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Category: Life Sciences
Name: Amelie Nguyen
Submission Type: individual
Faculty Sponsor(s) & Department(s): Daryl Davies, Molecular Pharmacology and Toxicology
Format: Laboratory-based Research
Title: Overlapping Molecular Sites for Ethanol and Ivermectin in P2X4 Receptors
Abstract: The ionic purinergic class of receptors (P2XRs) are cation-selective, ligand-gated ion channels activated by extracellular adenosine 5-triphosphate (ATP). P2X4R is one of seven P2XR subtypes known to express as a homomeric protein in the central nervous system. Previously, we reported that P2X4Rs are inhibited by alcohol (ethanol) in an allosteric manner. Ivermectins (IVM), a class of antiparasitic drugs, also allosterically modulate P2X4Rs. Presently little is known regarding sites/mechanisms of action for these two drugs. We expressed P2X4Rs in Xenopus oocytes and tested the effects of ethanol and IVM using two electrode voltage clamp (-70mV). Ethanol (25-200mM) reversibly inhibited ATP-gated function whereas IVM (0.5-10μM) potentiated ATP-activated currents of P2X4Rs in a concentration dependent manner. We also investigated the simultaneous action of ethanol and IVM on P2X4R function by co-applying increasing concentrations of ethanol (25-200mM) with a single dose of IVM (0.5; 1; 3; 10μM). Ethanol reduced the potentiating effects of IVM, and this effect was inversely related to the concentration of IVM tested. Interestingly, experimental data obtained in the presence of both ethanol and IVM were significantly lower than the predicted additive values of ATP-activated currents induced by ethanol and IVM individually (e.g., 11.2 ± 7.26% potentiation vs 183.3 ± 10.7% for 200mM ethanol/3μM IVM). Taken together, our data suggest overlapping molecular sites for ethanol and IVM in P2X4R. Based on specific interactions of IVM and P2X4Rs, IVM may be useful as a pharmacological tool for investigating molecular mechanisms/sites of ethanol action in P2X4Rs.

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Category: Life Sciences
Name: Anna Maria Maglunog
Submission Type: individual
Faculty Sponsor(s) & Department(s): Samantha Butler, Neuroscience
Format: Laboratory-based Research
Title: The Role of Netrin-1 in Commissural Axon Guidance
Abstract: The development of the neuronal networks that underpin all the diverse functions of the nervous system requires that billions of connections must be made between neurons. Moreover, the intricate wiring and functioning of the system depends upon accurate connections, which are established within the developing embryo when each neuron sends out an axon towards its target cells. I have explored the molecular mechanisms that control axon guidance in the developing

vertebrate central nervous system. Axons grow along particular pathways assisted by attractive and repulsive cues in the surrounding environment. The first step in understanding the process of axon guidance is to identify all of the guidance cues for a particular pathway. The second step is to understand how these guidance cues collectively cooperate to produce an entire axonal trajectory. I have examined these mechanisms for the commissural axons in the developing spinal cord. I have studied the role of a gene, Netrin-1, that is expressed at the midline of spinal cord, directing commissural axons towards the ventral midline. There is preliminary evidence that the axonal response to the Netrin-1 is highly regulated by other genes, signifying a more complex mechanism of collaboration in axon guidance than was previously thought. I have studied this further first by examining the relationship between the routes of commissural axons and the expression of the Netrin-1 gene and second by analyzing the consequence to commissural axons in mice mutant for the gene.

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Category: Life Sciences
Name: Ashley Wofford, Tanya Nguyen, Kaelan Butler
Submission Type: group
Faculty Sponsor(s) & Department(s): Melvin Lyon, Neuroscience
Format: Laboratory-based Research
Title: Ability of Prenatally Administered Choline to Overcome Depressed Response to a Noxious Stimulus in a Prenatal Stress Animal Model of Schizophrenia

Abstract: Behavior of prenatally stressed rats as an animal model for schizophrenic behavior (Lyon and McClure, 1995) was used to test the effectiveness of prenatally administered choline in overcoming effects of prenatal stress as measured by escape/punishment conditioning.

N=64, male and female, Sprague-Dawley rats were subjects. N=16 (PNS) had mothers exposed to immobilization stress on gestational days e11-e14, while N=16 (UNH) had unhandled mothers. An additional N=16 (PNSCh) received immobilization stress and choline in drinking water on gestational days e9-e17, while N=16 (UNHCh) had unhandled mothers with choline administration. Each treatment group had even numbers of males and females. Offspring performed a noise-escape tiltcage task using 95dB white noise. The variable of interest was time sound off. Escape and punished responses, and latencies were recorded. Statistical analysis used SPSS.

As in previous studies, PNS animals were statistically different from UNH animals in time sound off in runs 8-12 both overall ($p = 0.008$) and by gender ($p_{female}=0.067$, $p_{male}=0.040$). PNSCh females were statistically different from PNS females ($p=0.040$); time sound off scores matched UNH females. This trend was not seen in males ($p=0.970$), likely because of greater higher variance.

This study aimed to repeat results from a prior study, “Developmental Schizophrenia 18.” The findings support the prior results, which suggest that dietary supplemental choline during pregnancy may overcome the effects of PNS in this animal model for

schizophrenic behavior, particularly in females.

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Category: Life Sciences
Name: Shemi Jalil
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Don Arnold, Molecular and Computational Biology
Format: Creative Work
Title: Inflammatory Gene Expression Caused by Oxidized lipids in Vascular Smooth Muscle
Abstract: Metabolism of arachidonic acids by lipoxygenase (LO) enzymes generate oxidized lipids which have potent pro-atherogenic effects in vascular cells including vascular smooth muscle cells (VSMC). Under diabetic conditions elevated levels of LOs and their products have been implicated in diabetes associated accelerated atherosclerosis. Vascular smooth muscle cell dysfunction plays an important role in the development of atherosclerosis. Products of the 12/15-LO pathway have been shown to have potent growth, chemotactic, oxidative, migration, and pro-inflammatory responses in VSMC. Aim of the current work is to study the effect of 12/15-LO overexpression, which simulates diabetic and atherosclerotic conditions, on the expression of inflammatory cytokines/chemokines in VSMC. VSMC were infected with adenoviral vectors expressing 12/15-LO or a control protein Enhanced Green Fluorescent protein (EGFP). Total RNA was isolated and analyzed by RT-PCR to determine the levels of cytokine/chemokine mRNAs. Supernatants from VSMC cultures were analyzed using cytokine antibody arrays to simultaneously profile the levels of several secreted cytokine/chemokine proteins. Results were expressed as fold over the control cells (VSMC infected with EGFP). Results showed that mRNAs of key inflammatory and chemotactic cytokines and chemokines were increased in LO overexpressing cells. Results using Cytokine antibody array showed that protein levels of many inflammatory cytokines/chemokines, growth factors and inhibitors of matrix-metalloproteases were increased in LO overexpressing cells. Furthermore, immunoblotting of cell lysates with phospho-specific antibodies showed that activities of some key signaling kinases were also increased in LO overexpressing VSMC.

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Category: Life Sciences
Name: Amanda Hiler, Nadia Hassan
Submission Type: group
Faculty Sponsor(s) & Department(s): William McClure, Biology
Format: Laboratory-based Research
Title: Analysis of D1 Positive Cells in the Nucleus Accumbens in a Prenatal Stress Animal Model of Schizophrenia.
Abstract: Previous experiments found that prenatal stress in rats can modify the neuroanatomy of the resulting pups in ways that resemble human mental illnesses, particularly schizophrenia. These changes include variations in dopamine levels and modifications in the areas of the brain associated with the limbic system, which would result in changes in emotional and organizational behavior. The nucleus accumbens is strongly associated with the limbic system, and cell size in this area has previously been shown to be altered by prenatal stress. We looked at D1DR

positive cell number within the nucleus accumbens in order to observe whether prenatal stress induces molecular changes in addition to neuroanatomical changes.

Pregnant mothers were immobilized for 90 seconds per day on embryonic days 11-14, inclusive. The prenatally stressed pups (I90) were allowed to mature before sacrifice. To analyze the molecular modifications that are produced by prenatal stress in the nucleus accumbens, brains were sectioned and stained for D1 receptor positive cells using immunohistochemistry. Stained cells were counted and analyzed using SPSS.

No significant difference was observed in the number of D1 positive cells in the unhandled animals when compared to I90 animals.

Although it is has been shown that cell size, axonal proliferation and cell density are correlated with increased incidence of schizophrenia, our results suggest that the number of D1 positive cells in the nucleus accumbens are not an effective indicator of the presence of the disease. Further analysis, however, is needed to confirm these findings.

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Category: Life Sciences
Name: Ryan Kohlbrenner, Ricardo Mestres
Submission Type: group
Faculty Sponsor(s) & Department(s): William McClure, Ph.D., Biological Sciences
Format: Laboratory-based Research
Title: Effects of Prenatal Stress on Cell Quantity in the Nucleus Accumbens and Cingulate Cortex Area 3 in the Animal Model of Schizophrenia.
Abstract: Prenatal stress (PNS) in rats can modify the neuroanatomy of the resulting pups in ways analogous to the changes observed in the human brains affected by mental illnesses, such as schizophrenia.
To study the neuroanatomical modifications caused by the PNS, we have quantified the number of cells in two regions of the rat brain: the nucleus accumbens (NAcc) and the cingulate cortex area 3 (Cg3). Both these areas have been shown to undergo neuroanatomical changes in the brains of PNS rats that resemble the abnormalities in postmortem brain tissue of schizophrenic patients.

In this experiment, mothers of the studied animals were subjected to stress on days 11-14 of their respective gestation periods (e11 – e14). The prenatally stressed female pups were sacrificed between post-partum days 118 and 119 (p118 – p119). Male pups were sacrificed between p132 and p137. Brain sections of 100 microns were immunohistochemically stained for Dopamine-2 receptors (D2DR).

Results of cell counts indicate that rats subjected to prenatal stress exhibit no significant change in the number of NAcc and Cg3 cells. While prenatal stress has shown to cause changes in the size of cells in these regions, we propose that the number of cells in these same regions is not affected by PNS.

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Category: Life Sciences
Name: Cora Dong
Submission Type: individual

Faculty Sponsor(s) & Department(s): Emily Liman, Biological Sciences/Neuroscience Department
Format: Laboratory-based Research
Title: Molecular Evolution of GCD
Abstract: The purpose of our project is to characterize the nature of mutations in guanylyl cyclase D (GCD), a membrane receptor protein believed to be involved in pheromone sensitivity or odor discrimination. Because GCD is a pseudogene in humans, we hope that the results from our studies will give us further insight into GCD's evolution. We examined the mutation sequence for 16 primate species including human. To obtain the sequence, we designed primers flanking known human mutations in five of the exons. We then used touch-down cycle parameters in polymerase chain reaction (PCR) to obtain the sequence, which we then purified using QiaQuick PCR purification kit protocol. Purified DNA products were then sent for sequencing off both strands using original PCR primers. Our results show that the exon 3 mutation occurred in a common ancestor of human, bonobo, and chimp. Exon 9 mutations occurred separately in a common ancestor of apes and OW monkeys, but were also found in a common ancestor of both. Exon 10 mutations were found in a common ancestor of apes, but also separately in gibbon and orangutan. Exon 11 mutations were found to have occurred in a common ancestor of human. Exon 12 mutations were found to have occurred in a common ancestor of both apes and OW monkeys. Because GCD is suspected to be involved in pheromone or odor detection, the loss of selective pressure on this gene can give insight for the time at which accessory olfactory systems became vestigial in humans.

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Category: Life Sciences
Name: Anne Park, Omar Ragab, Akash Gupta
Submission Type: group
Faculty Sponsor(s) & Department(s): Dr. Bosco Tjan, Psychology
Format: Laboratory-based Research
Title: Neural Correlates of Visual Crowding as Revealed by fMRI
Abstract: Crowding is defined as the dramatic decrease in letter recognition capability that occurs when a letter presented in the peripheral visual field is flanked by other characters. By utilizing functional magnetic resonance imaging, we sought to determine the region along the ventral visual pathway where crowding first takes place. Subjects carried out a letter identification task in which one of four Sloan letters (K, V, N, S) was presented as a target in the lower right periphery. Letters were presented for 100 ms, either singly or in three flanked conditions (1.25x, 2x, 3x, x=letter height). Subject performance varied widely from 50% in crowded conditions to nearly 100% in non-crowded conditions. In lower visual areas (V1-V3/VP), the peak amplitude of the Blood Oxygen Level Dependent (BOLD) response did not exhibit any statistically significant differences between crowded and non-crowded conditions. However, for at least half of our subjects, the amplitude of the BOLD response in the crowded conditions was suppressed in visual area V4 but enhanced in area LOC. This finding suggests that the crowding phenomenon originates somewhere between V1 and V4, and that the resulting suppression in

V4, indicative of an impoverished bottom-up signal, causes the LOC to recruit more spatial attention.

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Category: Life Sciences
Name: Aaron Andrade
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Joseph R. Landolph, Molecular Microbiology/Immunology and Pathology
Format: Laboratory-based Research
Title: Genotoxicities of a Nickel Refinery Sample in C3H/10T1/2 Mouse Embryo Cells
Abstract: Epidemiological and animal data indicate different nickel compounds have different carcinogenic potentials. To predict carcinogenic potentials of samples from Ni refineries, for which there are no animal inhalation studies and no, or inconclusive, epidemiological data, we used in vitro assays to determine genotoxicity of one nickel refinery sample provided by NiPERA. This genotoxicity data, when combined with those of other Ni samples, would allow us to predict carcinogenicities of nickel samples and prioritize them for animal testing. Nickel metal grinding dust represents dusts generated during grinding, normal handling, and use of massive forms of nickel, and contained macroscopic particles. This sample had weak cytotoxicity, was not phagocytosed, and did not induce morphological transformation of cells. Efficiency of phagocytosis of this sample as % phagocytosed in cells was 0% at 2,500 µg/ml. The cytotoxicity of Ni metal grinding dust was shown to have an LC50 = 607 µg/ml. Compared to a positive control, the ability of this sample to induce morphological transformation in 10T1/2 cells (foci/total dishes) at 1 µg/ml of sample was: MCA (0.51) > Nickel Grinding Dust (< 0.000018). Nickel Grinding Dust does not induce morphological transformation and is predicted to be non-carcinogenic. Supported by a contract from NiPERA to J. R. L.

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Category: Life Sciences
Name: Katherine McKissick
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Jed Fuhrman, Biological Sciences
Format: Field Research
Title: Ecology of Marine Bacteria
Abstract: Very little is known about the ecology of marine bacteria. The extent to which bacterial communities differ across differences in water depth, location, climate, and time is widely unknown. Many current projects aim to illuminate the existence and extent of these differences. This project looks at temporal and spatial comparisons of bacterial diversity of surface and shallow-water samples (from 0-10 meters). Water samples surveyed include archived time series samples from Iselin, Bermuda, and Florida. These were used for a wide-scale distance comparison of bacterial diversity as well as a small-scale temporal one. In addition to this broader comparison, samples were collected around Catalina Island in the summer of 2005 for a small-scale distance comparison—regarding distance from the shoreline and accompanying kelp beds.

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Category: Life Sciences
Name: Raymond Jone
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Albert Herrera, Department of Neurobiology
Format: Laboratory-based Research
Title: Modeling and characterizing Synapse Elimination using Xenopus laevis
Abstract: Synapse elimination is the process in which a specialized connection between two neurons is removed. This critical phenomenon occurs during embryonic development in which there is an initial excess of axonal inputs. It also plays integral role in learning and memory as well as recovery from neural damage. Several hypotheses have been suggested on the mechanisms involved in this activity-dependent phenomenon. In testing these hypotheses, we will need a detailed analysis of the time course of synapse elimination along with quantitative measurements of the extent of the process. To model synapse elimination, we have chosen to use the neuromuscular junction (NMJ) in the tadpole Xenopus laevis pectoral muscle. By using a cholesterase stain to visualize NMJs, we examined the appearance and disappearance of junctions across each developmental stage of the frog (stages 58 to 65). Results indicated that the there is an initial average innervation of 2.80 junctions per muscle fiber at stage 58. Between stages 61 to 63, this average declines from 2.60 to 1.60. From stage 63 to adult, the average increases from 1.6 to 1.85. Thus the data strongly suggests a distinct period of elimination occurring between stages 61 and 63. Further analysis of the frequency distribution and position of the NMJs have provided quantified measurements of the process and support that synapse elimination occurs under a competitive mechanism. Further study should be directed between the stages of 61 and 63.

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Category: Life Sciences
Name: Sridhar Chadalavada
Submission Type: individual
Faculty Sponsor(s) & Department(s): Magdalene J. Seiler, Dept. Ophthalmology; Dept. Cell & Neurobiology; Srinivas R. Sadda, Dept. Ophthalmology; Keck School of Medicine
Format: Laboratory-based Research
Title: No Rescue of Red-Green Cones in Degenerated Retinas by BDNF Treated Transplants
Abstract: Purpose: Immunohistochemical evaluation of red-green cone distribution in degenerated S334fer retinas after subretinal transplantation of retinal sheets.

Methods: Sheets of E19 rat retina expressing human alkaline phosphatase (hPAP), coated with BDNF microspheres, were transplanted to the subretinal space of 4-6 week old S334fer-3 rats with fast retinal degeneration that were exposed to blue light for 5 days. Controls for immunohistochemistry sections were rats with transplants without BDNF microspheres or with only BDNF microspheres. Transplants and host retinas were sectioned after 11-13 weeks and analyzed by immunohistochemistry with markers for donor tissue (hPAP), photoreceptors (A9C6), red-green (RG) opsin, and PSD95.

Results: RG opsin immunoreactivity is typically found in RG cone outer segments. In well laminated areas, transplant RG cones showed almost normal RG cone-opsin immunoreactivity with outer segment staining, but disorganized areas contained stained RG cone cell bodies and processes. Certain sections showed host cone migration or processes sprouting into the transplant. Host RG cone density was not higher outside the transplant than other areas although densities were variable. Treatment with BDNF microspheres did not result in significantly higher RG cone recovery in host tissues that received transplants.

Conclusion: Retinal sheet transplants can develop normal cones. However, BDNF microsphere treated transplants do not appear to improve RG cone recovery in degenerated retinas. Examination of blue cone distribution in this sample is the next step in determining the effects of BDNF microsphere treated transplant tissue on cone recovery in degenerated retinas.

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Category: Life Sciences
Name: Howard Harris
Submission Type: individual
Faculty Sponsor(s) & Department(s): Kenneth H. Nealson, Earth Sciences
Format: Laboratory-based Research
Title: Time Lapse Video Microscopy Visualization of Bacterial Reduction of Metal Oxides
Abstract: The process of bacterial reduction of metal oxides is not fully appreciated or understood. My project objective is to provide insight into the progression of the bacterial reduction process by showing actual Shewanella oneidensis MR1 reducing manganese oxide particles in a lactate solution. The time lapse video microscopy (TLVM) utilized computer controlled single-frame image capture with visible light illumination synchronized at time intervals of 1 to 15 minutes for 12 to 48 hours. Controls were performed with no bacteria present and then no lactate solution with bacteria which showed no reduction activity compared with the very rapid reduction occurring with Shewanella bacteria in a lactate solution. TLVM was demonstrated to provide vivid confirmation of the bacterial reduction of manganese oxide by Shewanella oeindensis MR1. In addition TLVM was used to observe the actual behavior of the bacteria during the reduction process, the attachment of the bacteria to the metal oxide particles and to study the secretion of extracellular fluid by the bacteria that may influence the reduction process. TLVM was proven to be an invaluable new analytical technique for determining the role of Shewanella oneidensis MR1 in reducing manganese oxide which can be used to investigate bacterial reduction of a wide range of metal oxides.

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Category: Life Sciences
Name: Kevin Zhang
Submission Type: individual
Faculty Sponsor(s) & Department(s): Magdalene Seiler, Doheny Eye Institute; Biju Thomas, Doheny Eye Institute; Srini Vas Sadda, Doheny Eye Institute
Format: Laboratory-based Research
Title: Behavioral Evaluation of the Light Sensitivity in Rats Using a Light-Detection A

Abstract: Purpose: Behavioral evaluation of visual sensitivity of S334ter-line-3 retinal degenerate (RD) rats following retinal transplantation using a light-detection apparatus. Methods: A light-detection apparatus was used to train 16 RD rats to distinguish between a non-illuminated background versus an illuminated background. The apparatus is a modified Y maze in which the pathway to the illuminated background allows the rat entry to its home-cage (reward). To determine the threshold level, the luminance of the background was reduced by steps of 0.5 log units using changeable filters. The surgery status of the rats was masked until the end of the experiments. Results: After 2.5 weeks of training, the rats learned to distinguish between illuminated background and dark background. At 100 days (of age) the visual threshold of the rats was 2.84 log cd/m2. At 200 days, 7 rats failed to perform even at a very high stimulus level (3.70 log cd/m2), while the level for the remaining rats increased to 3.43 log cd/m2. Generally, the rats that had higher visual capacity at 100 days retained the relatively higher light sensitivity at 200 days. No significant difference in performance could be observed between transplanted rats and non-transplanted rats. Conclusions: The light-detection apparatus is a useful tool for visual capacity evaluation in RD rats following therapeutic interventions. In the present study, the effect of retinal transplantation did not produce a detectable difference in the visual performance. Using a different visual stimulus, such as a moving pattern, may be a logical next step. Further improvements in the retinal transplantation may be necessary.

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Category: Life Sciences
Name: Maysa Alavi
Submission Type: individual
Faculty Sponsor(s) & Department(s): Bill McClure, Neuroscience
Format: Laboratory-based Research
Title: Impact of PNS on the stress response of rats as indicated by adrenal gland weigh
Abstract: Introduction: A rat model for schizophrenia (Lyon and McClure 1995) was used to evaluate the impact of prenatal stress (PNS) on offspring stress response as measured by adrenal gland weight. We predict that PNS will cause little permanent change in offspring stress response, resulting in minimal adrenal weight change.

Methods: Pairs of adrenals from Sprague-Dawley rats (N = 54) were weighed 120-127 days after birth and following 50 days of fixation in 4% paraformaldehyde in 0.1 M NaP2. The sample contained rats (N=15) born to mothers stressed during gestational days e11-e14 (I90) and N = 12 born to stressed mothers given choline treatment on e9-e17 (I90Ch). Controls (N = 14) were born to unhandled mothers (Unh) and mothers both unhandled and given choline (N=13, UnhCh). Results: Differences in adrenal weight of Unh and I90 rats were statistically insignificant (P=0.998) as were those of UnhCh and Unh (P=0.863) and I90 and I90Ch rats (P=0.757). There were also no significant differences observed among female or male treatment groups by one-way ANOVA for the former treatment conditions.

Conclusion: The data support our hypothesis that PNS is not likely to

cause a significant change in male or female rat adrenal gland weight as evidenced by the insignificant difference between Unh and I90 groups. Choline administration, suspected to reverse effects of PNS was similarly unable to cause no significant change in adrenal weight of either controls or experimental groups.

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CATEGORY

Physical Sciences & Engineering

Category: Physical Sciences & Engineering
Name: Pamela Fox
Submission Type: individual
Faculty Sponsor(s) & Department(s): Jerry Hobbs, Information Sciences Institute; Barry Schein, Linguistics
Format: Senior Honors Project
Title: Teaching a computer language through 3-d scene
Abstract: This project attempts to teach a computer the basics of a written human language (English, as a starting example) through the description of 3-d scenes. This is intended to mimic, to a limited extent, the way a human baby learns language, on the assumption that they learn by discovering the patterns in the way the world around them is described and using those rules to generate their own language. The hope is that after the computer baby is told sentences describing the world, the baby would then be able to tell the human user novel facts about the world to demonstrate their knowledge of the human language. The underlying motivation of this project is to counter all the brute-force computational linguistics programs out there that teach the computer nothing more than the probability of some sequences of words being near some other sequence of words, and to present a more naturalistic method of teaching computers how to understand and generate English.

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Category: Physical Sciences & Engineering
Name: Janelle Louie
Submission Type: individual
Faculty Sponsor(s) & Department(s): Francis Bonahon, Mathematics
Format: Laboratory-based Research
Title: The Harer-Penner Graphs of Small Surfaces
Abstract: We study ideal triangulations of punctured surfaces. A punctured surface is obtained by removing finitely many points (the punctures) from a closed surface such as the sphere, the torus, etc. An ideal triangulation is a decomposition of a surface into triangles with vertices at the puncture holes. In the case of the four-times punctured sphere, an ideal triangulation consists of six disjoint curves going from puncture to puncture, cutting the surface into four triangles. These triangulations can be associated with a diagram called the Farey diagram. The Harer-Penner graph of a punctured surface, given in terms of the Farey diagram, is a graph whose vertices correspond to ideal triangulations. Two vertices are joined by an edge if the corresponding ideal triangulations are related by an elementary modification called a diagonal exchange. For the three-times punctured sphere, this graph is finite, and for the once-punctured torus, it is a

tree. This project aims to better understand the Harer-Penner graph for the four-times punctured sphere, the next simple surface for which the graph becomes more complicated, by looking at where a few of the infinitely many ideal triangulations of the surface are located with respect to the Farey diagram.

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Category: Physical Sciences & Engineering
Name: Dolce Wang
Submission Type: individual
Faculty Sponsor(s) & Department(s): Steve Nutt, Materials Science Department of USC Viterbi School of Engineering
Format: Laboratory-based Research
Title: A Shocking Demand
Abstract: All over the world, the demand for electricity is ever increasing. However, the present international standard system of electrical grids is not designed to handle the increasing electrical loads. Today, power lines typically consist of a core of stranded steel wires wrapped with aluminum wires. As electricity is conducted through the overhead lines, they heat up and cause the lines to sag. If the sag exceeds certain limits, unnecessary brownouts or blackouts can occur. Thus, the effects of sag in overhead lines are of major concern, as the shortage of one line can potentially cause a power outage spreading over thousands of square miles in a matter of seconds. New overhead conductor lines are currently being designed to use a longitudinal glass/carbon, polymer matrix composite in order to replace steel as the new supporting core. This will allow for more electrical loads of up to twice the amount of existing loads without having to create new rights-of-ways. While the aluminum/steel overhead conductors are limited to a maximum operating temperature of 120ºC, the new conductor is expected to operate continuously at 180ºC, with short excursions to as high as 200ºC. For the composite core to operate at these high temperatures, the polymer matrix must exhibit a glass transition temperature above 200ºC to avoid strength losses and degradation of the epoxy. Several epoxy matrices are being studied to assess their influence on the performance of the core with respect to different temperatures and times.

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Category: Physical Sciences & Engineering
Name: Michael Johnson
Submission Type: individual
Faculty Sponsor(s) & Department(s): Vitaly Kresin, Physics
Format: Field Research
Title: Thermodynamic Properties of Liquid Helium Nanodroplets and Multielectron Bubbles
Abstract: Analytic derivations of the density of states for surface excitations (“ripplons”) and compressional excitations (“phonons”) of liquid helium nanodroplets are presented and shown to be in excellent agreement with numerical results and fitted forms. The same method is then applied to derive thermodynamic quantities for multielectron bubbles in liquid helium. Limitations are discussed based on instability of the bubbles due to fissioning at both positive and negative pressures. Analogs between the mathematical formalism employed and famous problems in pure mathematics

such the Prime Number Theorem are discussed.

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Category: Physical Sciences & Engineering
Name: Krystal Sly
Submission Type: individual
Faculty Sponsor(s) & Department(s): Mark E. Thompson, Chemistry
Format: Laboratory-based Research
Title: The Effect of Varying the Cathode Composition on Organic Solar Cell Performance
Abstract: The role of the cathode in organic solar cell device performance has not yet been fully addressed. In the past, it has been accepted that the cathode composition did not have a significant influence on overall cell performance. However, it has been shown in our lab that the choice of metal has a significant effect on the behavior of the devices. To address this issue, varying ratios of two metals, Al and Ag, were deposited on a standard solar cell device. Each standard device was composed of 200Å of a donor layer, (copper phthalocyanine, CuPc), 400Å of an acceptor layer (C60), and 100Å of an exciton blocking layer (bathocuprine, BCP), followed by the metal cathode layer. Initially, Al was deposited first followed by a layer of Ag. The total thickness of the cathode was kept constant at 1000Å while varying the ratio of Al to Ag. Device efficiencies varied from 0.6 to 0.9 percent, indicating that cathode composition does affect device performance. Results showed a distinct trend with an optimum ratio of metals at 1:1. Device efficiency observed at this ratio was significantly higher than at any other ratio, and surprisingly was higher than device efficiency with either Al or Ag deposited alone. Further research was conducted by reversing the order of the deposition of the metals, with Ag being deposited first followed by Al. The results observed here were quite different from the previous results, furthering indicating that there is a cathode-dependent effect on device performance.

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Category: Physical Sciences & Engineering
Name: Kristy Akullian, Randy Robertson, Edgar Evangelista, Joshua Garcia, Ee Ling Ooi, Thomas Robinson, Ifraz Haqque, Justin Perez, Aaron Kositsky
Submission Type: group
Faculty Sponsor(s) & Department(s): Dr. Thomas Jordan, SCEC
Format: Laboratory-based Research
Title: SCEC/UseIT: Software Engineering to Create an Earthquake Monitoring System
Abstract: The SCEC/UseIT program is a collaborative research internship comprised of both USC undergraduates and passionate students from throughout the country. Building upon the foundation of previous intern software, this year's interns succeeded in creating a prototype of an Earthquake Monitoring System (EMS). The project was undertaken at the direct request of the earthquake response community, which needs a comprehensive way to visualize, save, and display a plethora of interrelated datasets crucial to understanding earthquake activity. Interns developed software that allowed for a query of online earthquake databases to receive and display real-time updates, the display of important earthquake fault models, and the ability

to render informational movies from the software. In addition, interns engineered an entirely new representation of focal mechanisms that denotes a variable probability of rupture along a particular fault plane. While interns were primarily responsible for implementing requested additions to the EMS, they also developed creative functionality useful in making the program more navigable for the end-user. In this way, developments made were both grand in scale and elegant in nature. The result is a program that is intuitive, intelligent, and highly flexible. While the prototype has been completed, there is still much work to be done to meet our ultimate goal of a September 2006 software release. It is our hope that the EMS will be used as a teaching aid, a research tool, and a visualization technique that will both meet the immediate needs of the response community and inspire new innovations in earthquake modeling.

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Category: Physical Sciences & Engineering
Name: Timothy Kowalczyk
Submission Type: individual
Faculty Sponsor(s) & Department(s): Anna Krylov, Chemistry
Format: Laboratory-based Research
Title: Electronic structure and spectroscopy of carbon trioxide
Abstract: Carbon trioxide plays an important role as a reactive intermediate in atmospheric chemistry and has been detected in interstellar ices. However, its ground-state symmetry has eluded both experimental and computational chemists for decades. We have used coupled cluster theory, a method of computational quantum chemistry that effectively accounts for electron correlation in molecules, to acquire a more thorough understanding of the electronic structure of carbon trioxide. We have found that the cyclic C2v-symmetric isomer of CO3 is the global energy minimum on the molecule's potential energy hypersurface, with a higher-symmetry D3h isomer relatively close in energy. Triple excitations appear to have an unusually significant effect on the magnitude of this energy difference.

A characterization of the electronically excited states of CO3 has also been undertaken. The molecule's lowest unoccupied molecular orbital (LUMO) has a negative eigenvalue in D3h symmetry, leading to some especially low-energy triplet excitations and to a preference for excitation to this particular orbital from various occupied molecular orbitals.

The results of our study are currently being used in the preparation of an experiment in which carbon trioxide will be prepared in the gas phase and analyzed by cavity ringdown spectroscopy.

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Category: Physical Sciences & Engineering
Name: Aaron Wong
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Norberto M. Grzywacz, Biomedical Engineering; Dr. Monica Padilla, Biomedical Engineering
Format: Laboratory-based Research
Title: Culture and Cognition
Abstract: Cognitive styles studies assess how different people perform in a given setting. Previously, differences in

the influence of context on perception between populations were demonstrated for various tasks, primarily assessed through visual and psychological questionnaires. These populations depended upon sociocultural categories such as ethnicity, religious background, occupation, and gender. The results classified people as either field (context) dependent or field (context) independent. However, none of these psychophysical studies determined if observed cognitive styles are consistent for more than one sensory system, visual or auditory. Further, they produced mixed results regarding a correlation between culture and cognitive style. To investigate these two issues, we designed a set of tests that assesses the cognitive styles of a diverse subject population in three areas. In visual recognition, subjects identify an ambiguous object placed in a proper or improper spatial context to an identifiable figure. Speech recognition involves hearing an out of context or in context word embedded within a sentence. For motion perception, subjects detect a cluster of dots moving in one direction amidst a field of dots moving in a different direction. We also examined if training in one task affects the cognitive style employed in other tasks. We expect the majority of subjects to be neither field dependent nor independent in all tasks, and that training can change context dependence. After the data for each subject is separately analyzed, we will attempt to separate people into statistically significant groups.

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Category: Physical Sciences & Engineering
Name: Lanita Williams
Submission Type: individual
Faculty Sponsor(s) & Department(s): Leslie Bernstein, Department of Preventive Medicine; David D'Argenio, Department of Biomedical Engineering
Format: Field Research
Title: Lymphedema Study
Abstract: The build up of lymphatic fluid in the arms and legs can cause a swelling known as Lymphedema. This disorder can be injurious to one's lifestyle if left untreated. A person's Lymphedema can be categorized as primary or secondary. Primary Lymphedema includes damage to the lymphatic tissue that may arise as a result of genetic dysfunctions, and secondary Lymphedema may occur as a result to bodily trauma (i.e. surgery). The focus of this research was to determine which women had a greater chance of developing Lymphedema, primary and secondary, based upon their physical condition and medical history. In past studies, it has been shown that women who have had a mastectomy surgery with axillary lymph node removal for the treatment of breast cancer are at risk of developing this condition. Though the majority of these women have been treated for these symptoms there is still no real cure. As the increased knowledge of technology and biology are leading this world, there are companies that are trying to develop therapies for Lymphedema that will reestablish the damaged lymph drainage system of those persons infected with Lymphedema. Currently the best way to control this ailment, and many others, is with early detection so that appropriate care may be administered to help decrease the negative effects it may have on one's life.

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Category: Physical Sciences & Engineering
Name: Leslie Nguyen
Submission Type: individual
Faculty Sponsor(s) & Department(s): Alexander Francois, Computer Science
Format: Creative Work
Title: Automatic Code Generation in SAI
Abstract: I propose to implement automatic code generation from architectural designs for SAI. SAI defines an architectural style for the design and implementation of software systems that require the asynchronous parallel processing of generic data streams. The refinement of logical level specification into physical level (code) will be facilitated by the use of an existing architectural middleware MFSM (Modular Flow Scheduling Middleware) that implements the SAI abstractions.

The use of SAI in various experimental projects dealing with integrated and interactive systems illustrates its effectiveness in simplifying the design and development of complex systems. Examples of projects that use SAI include: a computer vision system that will allow robots to detect and track people in real-time, a music analysis and visualization system called MuSA.RT (Music on the Spiral Array) that displays tonal patterns in music, and a distributed, interactive, 3D, multiplayer soccer game. The purpose of my application is for users of SAI to automate the repetitive tasks of creating different components and linking them together, a process that is prone to errors and hard to debug. The automatic code generation application will output a file that contains codes for the creation of different component and their connection to each other. This tool will provide users with a compilable program that lacks details, which the users will code themselves.

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Category: Physical Sciences & Engineering
Name: Eric Shah
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Surja J. Prakash, Chemistry (Loker Hydrocarbon Institute)
Format: Laboratory-based Research
Title: BF3:HOH catalyzed condensation reactions of aldehydic benzenes
Abstract: Aromatic aldehydes can be reacted with hot BF3:HOH instead of more expensive superacids. Water complexes with BF3 to form a Bronsted acid due to boron's high electron deficiency in BF3. Hot BF3:HOH is a superacid and is able to carry out acid catalyzed reactions that would otherwise not be possible. Monoprotonated aromatic aldehydes are not strong enough to react with aromatics when catalyzed by 100% H2SO4 at room temperature. Dehydration reactions of aromatic dialdehydes under BF3:HOH were found to produce triaryl methane derivatives due to the ability of BF3:HOH to further protonate the intermediate, making the intermediate even more unstable and a better electrophile. Monoaldehydic aromatics also produced triaryl methane derivatives. Anthracenes were found to evolve from diprotonated intermediates of the condensation reaction of a phthalic dicarboxaldehyde. Isophthalic and terephthalic dicarboxaldehyde

condensation reactions were found to react similarly to produce diarylmethylbenzaldehyde derivatives. The mechanism for triaryl methane derivatives was elucidated to go through many protonations and take advantage of isomerism. These reactions are useful for replacing current reactions that utilize more expensive superacids and can be used to more cheaply produce necessary precursors to drugs.

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Category: Physical Sciences & Engineering
Name: Viviane Ghaderi
Submission Type: individual
Faculty Sponsor(s) & Department(s): Todd Brun, Electrical Engineering Systems
Format: Field Research
Title: Comparing Classical and Quantum Mechanical Random Walks
Abstract: For my project I compare the running times for classical and quantum mechanical random walks. We hope to confirm the conjecture that the quantum version of the algorithm reaches a solution faster than the classical case. This would mean that quantum computers in the future would be faster than the classical ones we use today.

Classical random walks are often used to solve problems in computer science. A random walk can be described as a particle that moves from point to point on a graph, such as a cube, that consists of points at each corner which are connected by edges. The average time it takes the particle to move from the starting point until it reaches the destination point is called the hitting time, which corresponds to the average running time of the algorithm. Comparing the hitting time of quantum mechanical walk to that of a classical walk, our preliminary results have shown that the quantum version of the algorithm reaches a solution faster than the classical one on some graphs. After conducting several simple simulations of random walks, I have developed another program that solves more difficult problems in computer science, called 3-Satisfiablity problems. For low levels of difficulty the simulations showed that the quantum version is faster than its classical counterpart. Further tests are needed at higher levels of difficulty to see if this trend continues.

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Category: Physical Sciences & Engineering
Name: Chad Tao
Submission Type: individual
Faculty Sponsor(s) & Department(s): Peter Qin, Chemistry
Format: Laboratory-based Research
Title: Site-Specific Dynamic Features in DNA Studied by Site-Directed Spin Labeling
Abstract: Sequence-dependent dynamic features in DNA are critical for DNA/protein interactions. However, information about these features is scarce and methods to probe DNA local dynamics are limited. Here, the site-directed spin labeling (SDSL) technique was utilized to study local dynamics in a 35-base-pair (bp) sequence within the BCL1 locus in human chromosome 11 that is strongly linked to mantle-cell lymphoma (MCL). In SDSL, a nitroxide moiety containing a stable, unpaired electron is attached at a specific site of a macromolecule. Measuring a rotational correlation time τ, which characterizes the nitroxide mobility, can yield local

dynamic information. In this work, the mobility of a nitroxide attached at the backbone of a nucleotide was measured such that τ reflects dynamics at the labeling site. High nitroxide mobility (τ = 0.39 ns) was observed at the blunt-end 35-bp duplex when position 18 at middle of the top strand (TS) was labeled. Surprisingly, mobility was reduced (τ = 0.63 ns) in a 3′-overhang duplex formed between a shortened TS and 35-nucleotide compliment, where removing 16 nucleotides in the TS positioned the nitroxide near the 5′ terminus. Higher mobility within the 35-bp blunt-end duplex might reflect increased DNA dynamics induced by the flanking sequence, possibly accounting for the unusually high susceptibility to chemical modification at this position. Work on the physical origin of observed nitroxide mobility is underway. The studies will advance our understanding of MCL and yield a SDSL tool for probing local dynamic features in DNA.

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Category: Physical Sciences & Engineering
Name: Christopher Palmer, Wendy Mata, Robert Phair
Submission Type: group
Faculty Sponsor(s) & Department(s): Dr. Edward J. Rhodes, Physics and Astronomy
Format: Laboratory-based Research
Title: Why Do the Solar Oscillation Frequencies Change?
Abstract: Heioseismology is the study of the internal structure and dynamics of the solar interior through analysis of the motion of trapped acoustic waves at varying depths. These standing waves, also known as the solar p-Mode oscillations, cover wide ranges in frequency and spherical harmonic degree. Previous studies have shown a direct correlation between changes in the frequencies of many of these harmonic modes and the 11-year cycle of solar activity. Most of these studies have utilized long time series of observation, which often cover two or more solar rotations, each of which is roughly 27 days. Such long time series tend to average out regions of different properties on the sun.

Our project is a continuation of a study begun last year by undergraduate students Rich and Oyakawa. Our primary contribution to this study has been the generation and analysis of 22 short-duration (three-day) time-series of data taken by the six stations of the Global Oscillation Network Group Project. This paper presents analysis of temporal shifts in the solar p-mode frequencies, which are derived from the 20 tables of frequencies we have produced. We have compared frequencies from short-duration observations in an attempt to maximize the sensitivity of the frequency changes in the levels of solar activity.

Our goal is to compare the correlation between the frequencies of oscillation and different indicators of solar activity at times of maximum solar activity with earlier correlations obtained at the time of the last solar minimum.

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Category: Physical Sciences & Engineering
Name: Suet Ying Christin Chong, Pavitra Krishnaswamy
Submission Type: group
Faculty Sponsor(s) & Department(s):

Martin Gundersen, Ph.D., Viterbi School of Engineering, Department of Electrical Engineering, Physics and Astronomy, and Materials Science; Laura Marcu, Ph.D., Biomedical Engineering, UC Davis (previously at USC)
Format: Laboratory-based Research
Title: Long Term Effects of Nanosecond Electroperturbation Therapy on Cancer Cells
Abstract: Recent research has shown that nanosecond high electric field pulses trigger intracellular events indicative of the apoptotic pathway in several malignant cell lines. We present here a novel study of the long-term effects of Nanopulse Electroperturbation Therapy on these cell lines. We subject cells to a pulse and re-culture cycle to determine how the apoptotic response of a cell changes with repeated pulsing over a period of time. The relative level of apoptotic response is monitored using microscopic imaging of fluorescent dyes like YO-PRO-1 and Propidium Iodide (PI). We report here the results of using existing generators to pulse the human multiple myeloma (B cell) line RPMI 8226 (ATCC CCL-155) in electroporation cuvettes with 1mm electrode spacing. A comprehensive investigation of the changes in apoptotic response requires a breadth in pulse parameters (particularly subnanosecond pulse width) that existing generation architectures cannot provide. We present the design and development of a 0.5ns 850V pulse generator to further facilitate our biological studies. The pulse generator uses a chain of avalanche transistors configured as a smoothly tapered transmission line from high voltage to ground. The design adapts a generation architecture that has previously been used to drive Pockel's cells to deliver low energy pulsed electric fields to biological cell loads. In addition to being compact and robust, the pulse generator has a built in 2GHz voltage divider to facilitate real time high voltage measurement during biological experimentation.

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Category: Physical Sciences & Engineering
Name: Noelle R. B. Stiles
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Armand R. Tanguay, Jr., Electrical Engineering, Materials Science, Biomedical Engineering, Neuroscience Graduate Program
Format: Laboratory-based Research
Title: Intraocular Camera for Retinal Prostheses
Abstract: One million Americans are blind, suffering from debilitating diseases such as macular degeneration and retinitis pigmentosa. Our purpose is to partially restore their vision. Currently, a prosthetic device with an external camera is in FDA trials, but rapid head movements induce significant dizziness and nausea. To eliminate problems such as extensive head movements, social estrangement, and limited mobility, we are developing an internal camera and electrode array that relieves these restrictions and requires minimal surgery.

Heat dissipation, stimulator array electrode number, camera size, and limited aberrations, in conjunction with surprising results from psychophysical analyses, shaped our camera design, resulting in a short focal length lens and limited aberrations. Through lens simulation and testing of two prototype cameras, we found that an aspherical

lens eliminates significant aberration, provides extensive depth of field, and makes implantation feasible. Our psychophysical analysis explored low-resolution object recognition and showed that 625 pixels are adequate for object recognition. In present and continuing studies, we are investigating the psychophysical implications of blur and motion on low-resolution vision, and the theoretical and experimental basis of the miniature camera's nearly-infinite depth of field. The chief results of these studies have made significant changes in the camera design constraints, making ultra-miniaturization possible. These intimately-coupled low resolution vision and optical design limitation studies are critical for the design and fabrication of the third and future generation cameras, in which the imaging array placement, depth of field effects, and optimal degree of image blurring must be determined.

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Category: Physical Sciences & Engineering
Name: Amelia Paukert
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Douglas Hammond, Earth Sciences
Format: Senior Honors Project
Title: Dynamics of the Marine Phosphorus Cycle Defined by Deep Water Sediment Fluxes
Abstract: Phosphorus is one of the critical nutrients for marine life, along with carbon and nitrogen. However, the details of the P cycle within the water column are not well understood. At the ocean's surface, the atomic ratio of C:N:P is generally thought to be a constant 106:16:1, the elemental ratio within phytoplankton, also known as the Redfield ratio. This study set out to determine whether the ratio of elements remained constant with increasing water depth. Sediment was collected in traps as it settled through the water column at depths of 550m and 800m, and sediment cores were collected from the ocean floor. The concentrations of the three elements were measured at the different depths, and the C:P ratios at 550m and 800m were 92:1 and 99:1, respectively. The consistency of the C:P ratio with the Redfield ratio implies that P is not selectively remineralized relative to C as it sinks through the water column.

The concentration of P buried in sediment cores was only 44% of that found in sediment settling through the water column. The missing P was found by incubating the sediment cores and sampling the overlying water at regular intervals. This analysis of P flux from ocean floor sediments showed that 34% of the original P was recycled back into the water. The buried and recycled P account for 78% of the original P, providing a relatively complete picture of the P cycle within the water column.

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CATEGORY

Social Sciences

Category: Social Sciences
Name: Derrick Pham, Michael Yap, Candice Lazaro
Submission Type: group
Faculty Sponsor(s) & Department(s): Diane Melrose, Dental Hygiene Program Director
Format: Field Research
Title: Dental Implant - A Clinical Guideline for the Dental Hygienists
Abstract: Proper care and maintenance of dental implants is vital to their longevity and prognosis. This research addresses the role of the dental professional, such as the dental hygienist, in the maintenance of dental implants. Information garnered from a literature review of numerous professional journal articles and textbooks was used to construct a dental hygiene practice guideline for the maintenance of dental implants. The maintenance of dental implants includes thorough radiographic and clinical assessments, definitive (precise?) atraumatic in-office debridement, and patient education of effective home care techniques. The contemporary practice guideline outlined here will provide to the dental hygienist (professional?) a comprehensive therapy method for dental implant maintenance. The success rate of dental implants has been proven to increase with proper care and maintenance.

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Category: Social Sciences
Name: Meredith Goldin
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Norman Miller, Psychology; Joy Stratton, M.A., Psychology
Format: Senior Honors Project
Title: Impact of Subtyping Salience on Consensus Estimation and the Black Sheep Effect
Abstract: This study examined whether the opportunity to subtype deviant individuals mediates the Black Sheep Effect and Consensus Estimation. The Black Sheep Effect typically finds that deviant ingroup targets are evaluated worse than outgroup targets that engage in the same negative behavior. We hypothesized that if participants had the opportunity to subtype a deviant individual, then there would be no need to derogate the individual and this effect would not occur. Another aim in the study was to examine the False Consensus Effect, defined as typically over-inflated perceptions of consensus for one's attitude or group position. We believed that the presence of a deviant member would cause participants to over-estimate consensus even more than normal. At the same time, we expected that the possibility to subtype that deviant member would cause participants to estimate consensus as lower than normal. We discovered that

while some of our hypotheses were supported, others were not.

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Category: Social Sciences
Name: Fiona Torrance
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Sandra Chrystal, Center for Management Communication
Format: Field Research
Title: Independent Study in Corporate Blogging
Abstract: My presentation is an examination of the uses of blogging in the education arena and in the corporate world. A current BUAD 490 Independent Study on Corporate Blogging under Dr. Sandra Chrystal consisting of two dimensions: 1. Why corporate blogging is relevant to business students 2. Why the corporate blog is an effective and appropriate business communication tool in the current social computing environment

Corporate blogging is relevant to business students because students' personal blogs affect their professional lives; because corporate blogs provide a platform to observe, understand, and learn about corporate networking; and because corporate blogs are a current evolving business communications tool that students can use to learn how to write and communicate effectively in business.

The corporate blog is an effective and appropriate business communication tool because it allows corporations to communicate and network with clients, businesses, and the public, in the current and evolving social computing environment. Blogs impact corporations whether they blog or not.

My knowledge management system for this study is a blog - Biz Blog Review - [http://bizblogreview.blogspot.com] and my research includes: An analysis of 32 corporate blogs; A study of relevant online editorial via blogs, wikis and research sites; Articles in academic journals, magazines, and newspapers; and Information gleamed from interviews with industry and academic professionals.

Both research papers will be submitted for publication in academic and industry journals, and at professional conferences. The study is currently used as a learning tool for USC undergraduate Writ340 students.

The first paper, "Why is corporate blogging relevant to business students?", won first place for Professionalism in the 2006 USC Undergraduate Writing Competition.

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Category: Social Sciences
Name: Yue Liao
Submission Type: individual
Faculty Sponsor(s) & Department(s): Chih-Ping Chou, Institute for Prevention Research
Format: Field Research
Title: Smoking Behavior among Chinese Youth in Wuhan, China and California, U.S.
Abstract: Tobacco use is a significant public health problem in the world. Preventive programs should target the adolescents since most smoking initiation occurs during that time, and cultural significances should be

addressed across racial/ethnic groups. Smoking behaviors, perceived risk & benefits of smoking are compared between Chinese adolescents in Wuhan, China and in California, United States. Mean scores for both smoking behaviors & perceived benefits are significantly higher in Wuhan study than that in California study; differences in perceived risks are not significant. Results suggest that social norms about smoking vary even within same racial group across countries. Preventive strategies might be more effective if address specific ethnicity under specific social environment.

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Category: Social Sciences
Name: Elizabeth Cook, Archana Prakash, Kathleen Benton, Karina Godoy
Submission Type: group
Faculty Sponsor(s) & Department(s): Dr. Carole Shammas, History
Format: Field Research
Title: Fire in the Built Environment: United States 1790 to the Present
Abstract: In the modern moment, fire is not perceived to be a significant threat to American livelihood, particularly within the urban environment. Such was not always the case. Prior to the 1920s, fire posed a significant threat to the built environment, one that was only slightly mitigated by insurance and improved structural safety. Only in the twentieth century did such improvements in fire fighting, fire prevention, building codes, and insurance practices negate fire as the primary destructive force in the U.S. built environment. Storms have now become the greatest threat. Of a far more volatile nature, storms have often wreaked greater property damage than fire ever did.

To garner the true destructive nature of such disasters, Philadelphia, Los Angeles, and Virginia cities have been used as case studies. With data spanning from 1790 to the present day, the economic effects of fires and storms have been analyzed in an attempt to determine what drove improvements in the American livelihood and when those took place.

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Category: Social Sciences
Name: Amy McKinney
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Bob Knight, Psychology; Dr. Jo Ann Farver, Psychology
Format: Creative Work
Title: An Examination of Emotional Regulation within Young Adults
Abstract: This study proposes to examine the recovering procedure of old and young adults. It is part of a larger study being conducted by Bob Knight and colleagues at the University of Southern California to test mood and memory in young adults. Using mood induction, specifically the combined Velten self-statement technique and music, participants will record their emotional level, if they consciously partook in their recovery process from the induced mood state, and more specifically how each participant did so. The results investigated the cognitive appraisals and mood levels of young adults.

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Category: Social Sciences
Name: Daniel Goldman
Submission Type: individual
Faculty Sponsor(s) & Department(s): JoAnn Farver, Psychology
Format: Senior Honors Project
Title: Alcohol, Expectancies, Dispositional Aggression, & Aggressive Behaviors
Abstract: Complex relations exist among alcohol consumption, alcohol-aggression expectancies, dispositional aggression, and aggressive behavior. Prior research suggests that expectancies and dispositional aggression moderate the relationship between alcohol consumption and aggressive behaviors. However, individuals' expectancies may predict both their consumption and their intoxicated aggressive behaviors, and their consumption predicts both their expectancies and their intoxicated aggressive behaviors. The relations between expectancies and non-intoxicated aggressive behaviors and those between dispositional aggression and non-intoxicated aggressive behaviors have not been examined in the literature. Analysis of these relations will help determine if further research is merited on the discriminant validity of alcohol-aggression expectancies and dispositional aggression. Additionally, binge drinking as a specific type of consumption has not been thoroughly examined in relation to expectancies, dispositional aggression, and aggressive behaviors. This study intends to fill these voids in the literature by measuring consumption levels, alcohol-aggression expectancies, dispositional aggression, and myriad aggressive behaviors via a series of self-response scales with a sample obtained from a large urban university.

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Category: Social Sciences
Name: Alexandra Shiovitz
Submission Type: individual
Faculty Sponsor(s) & Department(s): Amon Emeka, Sociology
Format: Creative Work
Title: "Predatory Self-Esteem Boosting" and the Creation of the Gifted Identity
Abstract: High school drop-out rates and underrepresentation in higher educational facilities for low-income and minority groups contradict the idea that individual effort primarily determines success, suggesting instead that structural factors may inhibit or discourage their participation. Using Becker, Lamont and Lareau as a basis for my own autoethnographic research of the high school experience, I posit that the socially constructed identities and resulting social action of multiple mutually reinforcing groups, namely administration, teaching staff and privileged students, generates a self-perpetuating system of exclusion that encourages the success of only an elite few. Teachers and administrators foster a sense of superiority in college-track students, causing these students to develop an identity as distinct from their peers – an exclusive "elite identity."

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Category: Social Sciences
Name: Shaheen Munir
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Franklin Manis, Psychology; Dr. Jo Ann Farver, Psychology

Format: Senior Honors Project
Title: Cross-Language Transfer of Reading Skills in Three Treatment Groups
Abstract: This study is a part of a longitudinal study measuring the cross-language transfer of reading skills. Participants were native Spanish-speakers enrolled in three educational programs with vastly different approaches to language instruction: true bilingual/dual language instruction, early-exit bilingual, and immersion. Participants were given a battery of measures at two testing points to measure achievement in Spanish and English. Performance on Spanish tasks was correlated with performance on related English tasks for each group. Preliminary results suggest differences between groups in regards to oral language tasks. Among the dual language group, a significant negative correlation exists between Spanish oral language performance and English passage comprehension. While some degree of cross-linguistic transfer is apparent in all groups, this relationship only appears within the dual language group.

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Category: Social Sciences
Name: Momoko Yamakita
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Richard John, Psychology
Format: Senior Honors Project
Title: Predicting Future Psychopathology from Case History and Gender
Abstract: Research has shown that subjective methods of clinical decision making (i.e. use of base rates) are often less accurate than mechanical methods, yet clinicians continue to rely on them. This study will investigate whether gender base rates affect the prediction of a future diagnosis in Cluster C Personality Disorders, as well as whether gender is a crucial characteristic of a typical personal with that disorder. Psychology undergraduate and graduate students will be presented with case histories that vary in gender and make likelihood and similarity ratings. Data will be analyzed to examine whether gender base rates affect their predicted diagnosis as well as how they perceive a typical person with that disorder.

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Category: Social Sciences
Name: Siobhan Byrum
Submission Type: individual
Faculty Sponsor(s) & Department(s): Steven Lamy, School of International Relations
Format: Creative Work
Title: The Privatization of Public Water Systems in The Developing World
Abstract: Political, economic, and ecological security experts, including key voices within civil society, have declared water to be the "oil" of the twenty-first century. The World Bank predicts that by 2025, some four billion people, half of the world's population, could live under conditions of severe water stress. Equitable access and efficient management and distribution of freshwater are essential for infrastructural, economic and human development. Developing countries are threatened and affected by this scarcity disproportionately. This growing global water scarcity exists largely from what is referred to as a human induced ecological security dilemma. In water stressed regions water may exist in

abundance, however, the necessary infrastructure required to treat, manage, and distribute freshwater is either severely dilapidated or close to non-existent. This project examines the assertion that privatization of public water systems in the developing world is an efficient and equitable means of freshwater management and distribution, a belief held by the dominant neo-liberal international economic institutions. Through comparative case study analysis of privatization schemes for public water systems in Cochabamba, Bolivia and the United Kingdom, I assert that full privatization, as represented by full public-private partnerships, cannot efficiently or equitably manage or distribute freshwater in the developing world. This conclusion is based on the findings that poor developing countries are unable to meet market-based demands and price setting standards for water.

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Category: Social Sciences
Name: David Hunt, Nathan Go, Stephen Tobin
Submission Type: group
Faculty Sponsor(s) & Department(s): Dani Byrd, Linguistics; Shri Narayanan, Electrical Engineering/Computer Science/Linguistics
Format: Creative Work
Title: Speech and Articulation kNowledge Website
Abstract: The goal of this undergraduate project was to design and implement a publicly accessible database of the speech sounds of English on the World Wide Web. We were given access to real-time MRI movies of spoken language production, made possible for the first time by the SPAN (Speech Production and Articulation kNowledge) group at USC, that allowed us to create a phonetic database of the sounds of English and representative sounds from other languages as they are articulated in real-time by human speakers. We integrated database and web design with state-of-the-art biomedical imaging and linguistic analysis to design the site. The website (http://sail.usc.edu/span ‹ click on videos) allows the viewer to play movies of the moving vocal tract (tongue, throat etc.) and hear the synchronous audio files. It is organized along standard linguistic guidelines such as the phonetic articulatory descriptions of each consonant. The viewer can play, pause, or step-through the movies frame by frame and study the articulatory detail of spoken language production, and it is anticipated that the database will be used by both teachers of English and by speech researchers. The website will be a permanent public asset of the USC SPAN Group and will remain on-line for the indefinite future with ongoing website updates designed to seamlessly integrate with the database we have established.

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Category: Social Sciences
Name: Ee Ling Ooi, Sandra Kim
Submission Type: group
Faculty Sponsor(s) & Department(s): Sandra Howell, Biokinesiology & Physical Therapy; Maryalice Jordan-Marsh, School of Social Work; Iris Chi, School of Social Work
Format: Creative Work
Title: Internet Health Promotion Challenges for Language Diverse Older Adults
Abstract: Health decisions are becoming more complex and many

people are going online to increase their understanding of health instructions and choices (www.pewinternet.org). Yet few good websites from US sources are available in languages other than English at a time when many older adults in the US are most comfortable communicating in the foreign language of their birth.

Current applications, however, are unable to provide a fully comprehensible translation. No readily available software can provide a valid and trusted translation of medical articles. A gateway website is therefore essential to help older adults gain access to valid health information in a language of their choice.

With this in mind, we have created a website that serves as a gateway to Chinese websites from various countries which provide valid health information for older adults. The next stage is to compile and build a parallel gateway for Korean sites. At this phase of the project, we are identifying Korean websites based on the criteria and guidelines in the CyberSeniors.org Curriculum. Websites are selected based on their relevance to the curriculum.

In the process of compiling these sites, we became aware of significant differences among countries in the design of the sites. Chinese, Korean, and American sites display distinct differences in terms of page content, layout and even color scheme. Thus, it is important for us to understand different web cultures in order to single out relevant sites for older adults from different cultural backgrounds.

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Category: Social Sciences
Name: Brendan Caine, Valerie Kong, Kimberly Simms
Submission Type: group
Faculty Sponsor(s) & Department(s): Brad Zebrack, PhD, MSW, USC School of Social Work
Format: Field Research
Title: The Resilience Factor: Psychological Growth among Young Adult Cancer Survivors
Abstract: In previous studies, negative psychological effects of cancer and its treatment are well-documented, but newly emerging research also suggests patterns of positive psychological growth for some young adult survivors of childhood cancer. PURPOSE: To identify elements of resilience resulting from a life-changing cancer experience. METHOD: Semi-structured, face-to-face interviews assessing the impact of cancer on long-term survivors' quality of life were conducted with a sample of 32 childhood cancer survivors between the ages of 19 and 37, and at least 5 years after diagnosis. Subjects were asked to describe how cancer has affected them across physical, social, psychological and spiritual domains of life. RESULTS: Many survivors reported attitudes and behaviors that are indicative of resilience in their life after cancer treatment. Four elements were identified and categorized as expressions of resilience. These elements are enhanced motivation, confidence, maturity and personal strength. CONCLUSION: The results suggest a positive impact of cancer among some cancer survivors. Future research needs to distinguish the factors favoring resilience from factors producing negative experiences. Findings also signify the need for programs that not only address the negative effects of

cancer, but also promote positive effects, such as resilience.

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Category: Social Sciences
Name: Tommy Cavanagh
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Jo Ann Farver, Psychology; Dr. Michael Dawson, Psychology
Format: Senior Honors Project
Title: Awareness and Physiological Arousal in a Classical Conditioning Experiment
Abstract: This study is a secondary data analysis of an experiment that measured awareness in a classical conditioning paradigm. Participants were college age students of both sexes, and were measured for physiological reactions before and during conditioning. Those participants with higher tonic physiological arousal and higher physiological responses were less likely to become aware of the contingency between the conditioned and unconditioned stimuli as compared to participants with lower physiological arousal.

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Category: Social Sciences
Name: Kareem El Sawy
Submission Type: individual
Faculty Sponsor(s) & Department(s): Constantin Vaitsos, IOM
Format: Senior Honors Project
Title: Issues In Outsourcing Management: A Balanced Scorecard
Abstract: My project investigates issues in outsourcing management by creating a scorecard for managers to use as a guide in making decisions when outsourcing. It is based on categories and weights that I have developed through extensive research as well as through my own insight and intuition. Essentially, it allows for managers to take a more objective and quantitative view in assessing where, what, and how to outsource.

I have developed 6 main categories: Complexity, Communication, Customer/Worker Demographic, Knowledge Transfer, Location, and Social Issues. Within these categories lie many sub-categories with a description of what each are, the value each has, and the issues a manager should consider.

Once each category has been given a score, managers can better understand how to more effectively make outsourcing decisions.

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Category: Social Sciences
Name: Lauren Baron
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Thomas Lyon, USC Law School
Format: Senior Honors Project
Title: The ability of child witnesses alleging sexual abuse to make numerosity judgment
Abstract: Children's ability to remember specific details of sexual abuse has been a controversial topic. One judgment child witnesses are frequently asked to make is how many times various types of events occurred. How adults use and retrieve memory to form numerosity judgments varies, yet previous research indicates that errors are common. It has been shown that factors such as question wording and frequency of an event can influence what

process one uses to remember. No research has examined children's numerosity judgments, particularly not in the stressful environment of the courtroom. Eighty court transcripts of children, 5-15 years old, alleging sexual abuse in Los Angeles County were coded for attorney's questions, content and children's responses. It is expected that younger children will be more likely to provide exact responses and less likely to offer ranges than older children, but also more likely to appear inconsistent in their responses. Moreover, inconsistencies and implausible exact answers are expected to increase the likelihood of acquittal. The implications of the results for how children should be questioned will be discussed.

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Category: Social Sciences
Name: Sarah Jawaid
Submission Type: individual
Faculty Sponsor(s) & Department(s): Richard Sundeen, PhD, Public Policy, Planning and Development
Format: Senior Honors Project
Title: Healthy Lifestyle Awareness Program
Abstract: All People's Christian Center (APCC) is looking to renovate their weight room which is need of repair. After speaking with an APPC representative, I discovered that there is a need of attracting more women, children and teenagers to the facility. I put together a project proposal analyzing whether All People's Christian Center, a United Way partner, provided proper nutritional advice for their community members. Obesity is prevalent among youths in America and this is the theoretical issue driving this work. This center is in South Central Los Angeles where people are less likely to engage in physical activity because of safety issues and the deplorable built environment. Residents of these neighborhoods are prone to obesity because they lack access to nutritional foods and the knowledge of how to stay fit. My project looked to renovate the weight room at All People's Christian Center in an attempt to encourage the residents to start using the facility. I also proposed creating programs that would give people access to nutritionists and aerobic classes for teenagers, children and mothers to increase their physical fitness and hopefully make their lives healthier.

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Category: Social Sciences
Name: Promise McEntire
Submission Type: individual
Faculty Sponsor(s) & Department(s): Jo Ann Farver, Psychology; Ernest Greene, Psychology/Neuroscience
Format: Senior Honors Project
Title: Strength of Encoding for Four Different Attributes of Shape
Abstract: Attneave demonstrated that points of high curvature were most important for object recognition. While this conclusion became the basis for much of modern computer vision theory, it is not consistent with psychophysical data showing that curvature, a metric property, is not reliably perceived across viewpoints (Biederman & Barr). Having low viewpoint stability, one would not expect curvature to be a key component of a process as robust as object recognition. This weakness was further demonstrated by Foster & Gilson who, using a wire shape discrimination task,

found that changes in curvature were less discriminable than changes in the number of segments and as discriminable as changes in segment length and angle of segment intersection (AOI.) Assuming features are encoded with strength proportional to discriminability, the number of errors in a feature-dependent recall task should be inversely proportional to discriminability. This was tested using a delayed match-to-sample task; subjects were presented with four alternatives that each differed from the target along one of the aforementioned dimensions. Because there was no correct response, subject errors are interpreted as a reflection of the relative strength of feature encoding. Across feature contrast levels, the largest number of errors occurred for changes in AOI, followed by length, curvature, and then segment number. The fact that the relative accuracy of curvature recall is higher than the discriminability of curvature suggests that although observers may not be good judges of curvature, information about curvature is encoded more strongly in subject memory than other features of similar discriminability.

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Category: Social Sciences
Name: Margaret Buckles
Submission Type: individual
Faculty Sponsor(s) & Department(s): John Odell, International Relations
Format: Senior Honors Project
Title: The Power of Mediation: Unexpected Results in Guatemala's Peace Process
Abstract: The Guatemalan civil war was the longest-running conflict in Latin America, lasting 36 years. A Cold War-style conflict between a right-wing government and leftist rebels, it was fueled by ethnic and economic tensions in which the Soviet-backed National Guatemalan Revolutionary Unity (URNG) waged a guerrilla war against the U.S.-backed military regime. Published studies on these types of conflicts indicate that they are typically very difficult to resolve, with poor results and which often revert back to war after a settlement has been reached. Yet, the United Nations called Guatemala's peace process one of the most successful cases with which it had ever been involved, as a result of its highly comprehensive and progressive peace settlement. Rebel forces were perpetually close to defeat throughout the war, so conventional wisdom indicates that any settlement should have been limited in scope to disarmament issues with provisions that favored the government. Why, then, did the final agreement contain so many concessions to the URNG on social reforms? I attribute the unexpectedly innovative peace treaty to the large degree of involvement and meditation from international actors, which biased the result toward the party that had little leverage on the battlefield. This examination attempts to discern what strategies were most effective in moving the peace process toward a productive end. To construct the case study, I interviewed actual participants of the peace negotiations who could provide insider accounts of why Guatemala’s war had such a triumphant end.

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Category: Social Sciences
Name: Kimberly Lowenthal
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Stan Huey Jr., Psychology
Format: Senior Honors Project
Title: Factors Mediating the Effects of One Session Treatment on Specific Phobias
Abstract: This study will examine the factors that mediate the effectiveness of One-Session Treatment for treating specific phobias. This project is part of a larger study investigating a culturally adapted form of One-Session Treatment for East Asian adults in comparison to standard One-Session Treatment and self-directed manual treatment. The participants will be college students of East Asian descent with a diagnosable specific phobia (according to the DSM IV, 1994.) This project will focus on four mediating factors: habituation, in-session exposure, cognitive mechanisms, and post-treatment exposure. It is expected that one or more of these factors will serve as the mechanism(s) through which One-Session Treatment is effective for the treatment of specific phobias.

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Category: Social Sciences
Name: Robyn Hightower
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Brian Lickel, Psychology; Dr. Jo Ann Farver, Psychology
Format: Senior Honors Project
Title: Salient Ethnic Identity's Effects on Beliefs about Careers and Race
Abstract: Positive and negative stereotypes affect the way people view minority groups and the way minorities view themselves. Negative stereotypes existing about minorities affect every aspect of society, including family dynamics, religious practices, education and (the focus of this study) occupations. The sample consisted of 250 college students of all races. First, participants had their student or racial identity made salient through priming. Then participants were asked to rate how desirable they personally found 26 high and low status occupations and then to rate how likely four races (African American, Asian American, European American and Latino American) are found in each occupation. Analysis of variance found that all students, no matter the race, preferred high-status jobs (i.e. doctor) over low-status jobs (i.e. maid). Participants also stereotyped the focal races equivalently: African Americans and Latino Americans were expected to have low-status jobs while European-Americans were assumed to have high-status jobs. Fitting into neither category, Asian Americans were equally unlikely to have low-status or high-status jobs. The results show that all students have the same aspirations, yet all believe that minorities hold occupations that differ from those of the majority. Once psychologists fully understand the reasons surrounding the career choices and realities of minority groups, they can work to dispel the negative stereotypes attached to those groups.

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Category: Social Sciences
Name: Matthew Borba
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Stan Huey, Jr., Psychology
Format: Senior Honors Project

Title: The Therapeutic Alliance and Treatment Outcomes in Multisystemic Therapy
Abstract: Evaluated the relationship between the therapeutic alliance and treatment outcome in a group of 31 adolescent youths and their families in multisystemic therapy (MST), a family based therapy for adolescent delinquents which draws on empirically supported, pragmatic techniques of therapy. Audiotapes of therapy sessions were coded using the Working Alliance Inventory, Observer Short form (WAI-OS). For each family, three measures of the therapeutic alliance were obtained, one measure from the early weeks of therapy, one from the middle period, and one from the final weeks. Treatment outcomes measures, as well as baseline levels obtained prior to treatment, were obtained from youth and caregiver reports of youth drug use, criminality, and delinquent behavior, as well as family functioning. We hypothesized that there would be a positive correlation between the therapeutic alliance across the course of therapy and treatment outcomes. Further, we hypothesized that a positive alliance in the early session of therapy will be more strongly positively associated with treatment outcome than later sessions. Preliminary results suggest that there is not a statistically significant relationship between therapeutic alliance and self reports of drug use, but that there may be a significant relationship between the alliance and family functioning.

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Category: Social Sciences
Name: Steven Smith
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Joann Farver, Psychology
Format: Senior Honors Project
Title: The effect of death anxiety on spirituality
Abstract: This proposed study will use an experimental design to investigate how increasing participants' death salience in participants will affect their reported spirituality. The sample will consist of 90 undergraduate students at the University of Southern California. The experiment will contain one condition and one control group. Spirituality will be measured using the Spiritual Meaning Scale. It is hypothesized that by increasing death awareness participants will report an increased degree of spirituality. Results from this research will contribute to the understanding of terror management theory by showing a mediating function of spirituality against death anxiety.

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Category: Social Sciences
Name: Felicia Lucas
Submission Type: individual
Faculty Sponsor(s) & Department(s): John Odell, International Relations
Format: Field Research
Title: Progressive Policy:A Case Study of Harm Reduction Programs in the Czech Republic
Abstract: Eastern Europe has the world's fastest growing HIV infection rate. The Czech Republic, however, has been remarkably successful in combating this problem, which has enabled it to achieve astonishingly low infection rates. Thus, the goal of our project was to analyze the HIV/AIDS prevention and treatment strategies in the Czech Republic, especially with respect to their harm reduction programs. These programs, which

include condom distribution, needle-exchange programs, and drug-treatment centers, are highly contentious. The objectives were to find out how effective these programs are, when they are unsuccessful, and what factors, political or otherwise, help or hinder the fight against HIV/AIDS in the Czech Republic. By conducting open-ended interviews with faculty members it was discovered that the success of varying types of harm reduction programs hinged upon extensive networking, consistent financial support, and open governmental support. The harm reduction programs in the Czech Republic once faced the same difficulties that beleaguer similar nascent programs in the U.S., such as staunch initial public opposition. However, these programs persevered and evolved into a successful, progressive public health system that can serve as an exemplary model for harm reduction programs elsewhere. Further research should be conducted to comprehensively assess the success of these programs with regards to other pertinent issues, like the current status of public acceptance and the prevalence of diseases that are transmitted by the same mechanisms as HIV (e.g. Hepatitis C).

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Category: Social Sciences
Name: Erin Bardales, Anna Bokarius
Submission Type: group
Faculty Sponsor(s) & Department(s): Tania Ionin, Linguistics; María Luisa Zubizarreta, Linguistics
Format: Laboratory-based Research
Title: Linguistic Knowledge in the Second Language Acquisition of English Articles

Abstract: This study investigates second language acquisition of English articles by adult speakers of Russian and Spanish. We investigated three sources of linguistic knowledge and how they affect article choice: (1) the input of a target language (L2) (2) transfer from a native language (L1); and (3) innate linguistic knowledge.

We tested 23 Russian and 24 Spanish speakers with varying exposure to English. All participants took two written tests: a written elicitation test of English article use and an English proficiency test. We then compared these results to those of native English speakers.

Articles in Spanish are similar to articles in English, and Russian does not contain articles. So, we were able to investigate all three sources of linguistic knowledge by testing these two groups: we examined whether Spanish speakers are affected by transfer from their L1, and whether Russian speakers, in the absence of articles in their L1, are able to access innate linguistic knowledge.

Our findings show that the presence of articles in the L1 aids acquisition of articles in the L2: Spanish speakers are more accurate than Russian speakers in their use of English articles, suggesting that they transfer the meaning of Spanish articles onto English ones. We further show that Russian speakers, who lack articles in their L1, nevertheless follow certain patterns in their use of English articles, suggesting that they have access to linguistic universals. Our results have implications for pedagogical instruction of second language learners in the area of English articles.

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Category: Social Sciences
Name: Jessica Ramirez
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Laura Baker, Psychology
Format: Creative Work
Title: Effect of Mother's Employment Status on Children's Behavior
Abstract: Previous studies have found socioeconomic status to be inversely related to conduct problems in children. However, it remains a question what benefits there are to children's behavior and adjustment from mothers staying at home versus being in the workforce while raising their children. We are examining the joint relationship of socioeconomic status and mother's employment status on children's behavior problems in 9-10 year old children, to see what their individual and combined effects might be. More specifically, we wonder whether the effect of mother's employment status on child outcomes may depend on other factors such as their family socioeconomic status (and whatever resources may be consequently provided as a function of socioeconomic status). We are also examining the mother's marital status and the family structure, as well as her own pathology and anti-social behavior. In our study, we found a marginally significant interaction between unemployed mothers and socioeconomic status in boys, such that the mean unemployed mother difference in anti-social behavior, gathered from teacher ratings, was largest for the high socioeconomic status groups. Therefore, there was a protective factor for having a stay-at-home mother in the high socioeconomic status families, but not in the low socioeconomic status ones.

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Category: Social Sciences
Name: Nitin Sharma
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Richard Easterlin, Economics
Format: Senior Honors Project
Title: Happiness at Work??: The Economics of Subjective Well-Being Across Occupations
Abstract: What kinds of jobs are most rewarding? What factors contribute most in making jobs interesting? The interdisciplinary field of happiness research from the standpoint of economics is now thriving as a result of convergence of subjective well-being ideas from social and organizational psychology, behavioral economics, decision theory and so on. This project attempts to extend the happiness analysis to the domain of work and occupational life. It uses General Social Survey (GSS) data for over 20,000 individuals in the United States to arrive at descriptive statistics that indicate measures of happiness and job satisfaction for 37 different occupational categories. With regressions that control for occupations, the impact of objective characteristics such as real income as well as subjective characteristics such as job security, degree of interesting work and service element of work is statistically analyzed. Other variables proved important in the following order: opportunity for promotion, extent of leisure time, helping others, helping society, independence. The research has several potential applications in career counseling, for example, as the individual perceptions of different jobs can be compared to measures that indicate reality.

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Category: Social Sciences
Name: Ali Zieglowsky
Submission Type: individual
Faculty Sponsor(s) & Department(s): Gerald Davison, Psychology; JoAnn Farver, Psychology
Format: Senior Honors Project
Title: Ethnicity and Body Image
Abstract: The relations among body image, body esteem, perfectionism, and ethnicity were explored in a multi-ethnic sample of African American, Asian American, Caucasian American, and Latina American females. Participants were undergraduate female students from the University of Southern California recruited from the Experimetrix website. Group differences in body dissatisfaction were assessed, possible variations in the relation between body dissatisfaction and perfectionism were investigated, and the potential interaction between perfectionism and ethnic identity in predicting body dissatisfaction was explored. Preliminary analyses of collected data have shown that Caucasians have the poorest overall body image and individual differences in perfectionism explain the greatest proportion of the variance in body dissatisfaction among those in this ethnic group. Additionally, perfectionism negatively interacts with ethnic identity to predict body dissatisfaction among the other observed ethnic groups.

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Category: Social Sciences
Name: Krystal Scherrer
Submission Type: individual
Faculty Sponsor(s) & Department(s): Marc Weigensberg, Clinical Pediatrics, Keck School of Medicine
Format: Field Research
Title: The Effect of Guided Imagery on Reported Stress in Overweight Latino Adolescents
Abstract: Childhood obesity is a growing epidemic, and with obesity comes the increased risk of developing CVD and Type 2 diabetes (Hannon, 2005). Stress is known to trigger the release of cortisol, a hormone which is a risk factor for the development of diabetes and heart disease (Tsigos et al., 2002). Inner-city Latino adolescents are experiencing increased stress (Unger et al., 2004), and are more likely to be overweight when compared to non-hispanic whites of the same age (Hedley et al., 2002). In order to solve these problems, researchers are now looking to holistic treatment options to reduce stress. Guided imagery is a relaxation technique that conditions patients to relax by using breathing methods and focused visualization of a comforting place. Visual imagery has been an effective treatment option for conditions as diverse as wound healing (Holden-Lund, 1988) and bulimia (Esplen et al., 2001). This study aims to use visual imagery to decrease stress and diabetes risk factors in overweight Latino adolescents. We hypothesized that a guided imagery session would lead to a decrease in reported stress in the target population subject group. A four week guided imagery intervention was performed on 4 Latino adolescents, two boys and two girls, and surveyed stress data was collected before and after each intervention using a visual analog scale (VAS) modified from McNair's Profile of Mood States scale (McNair et al., 1971). Examining the stress data gathered from the results of a visual

analog stress scale (VAS), subjects' stress scores were used to test the effectiveness of the intervention. It was found that there was a statistically significant difference between the stress sum means after the intervention than before the intervention with a reduction in the post-intervention means. It was also found that the stress sum means decreased after each intervention session. Our hypothesis that acute stress would be reduced as an effect of guided imagery was statistically supported for the first session. With these preliminary results, a third wave is planned for the beginning of next year, and a longer study is planned for the near future. Latino adolescents have an increased risk for the development of Type 2 diabetes and CVD and being exposed to stress at an early age. This guided imagery intervention is a new technique that researchers hope will provide a valuable alternative to current methods.

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Category: Social Sciences
Name: Amber Degn
Submission Type: individual
Faculty Sponsor(s) & Department(s): Dr. Gerald C. Davison, Psychology; Dr. Jo Ann Farver, Psychology
Format: Senior Honors Project
Title: Using ATSS to examine aggression and masculinity ideology in heterosexual males
Abstract: This purpose of this study was to examine the relationship between masculinity ideology and aggression arousal in heterosexual males when confronted with anti-gay hate speech. 60 heterosexual male college students participated in this study; 30 experienced an ATSS scenario which exposed them to anti-gay hate speech and the other 30 were exposed to a hostile hate speech condition. Transcripts from each participant were then coded to measure levels of aggression arousal as well as characteristics typical of a high adherence to masculinity ideology. It was hypothesized that participants who had higher scores in masculinity ideology would express the most aggression during the anti-gay hate speech condition because the "homosexual" label would conflict with their masculine identity. (Results pending)

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Category: Social Sciences
Name: Julie Thomas, Trina Roldan
Submission Type: group
Faculty Sponsor(s) & Department(s): Roseann Giarrusso, Longitudinal Study of Generations-Andrus Gerontology Center
Format: Field Research
Title: Methodological Issues in the Sociology of Aging and the Life Course: Finding Inexpensive and Unobtrusive Measures of Cognitive Decline
Abstract: The goal of this research is to examine the validity and reliability of two paper and pencil measures of mild cognitive decline using a non-clinical sample of elders from the Longitudinal Study of Generations. The paper and pencil measures used in this study are the Clock Drawing Task and the Cube Drawing Task. The purpose of this paper was to determine which coding scheme provided the best assessment of mild cognitive decline by cross-validating it against self-report measures of memory problems and memory decline. Inter-rater reliability was calculated and found to be well within the acceptable range (from 97% to 100% agreement for the

four coding schemes). Preliminary analyses reveal a high degree of association between the Clock Drawing Task and the self-reports of memory decline. However, results are less clear for the Cube Drawing Task. Reports of family members about the memory problems of the elders also show an association with the Clock Drawing Task.

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Category: Social Sciences
Name: Lindsay Ruben, Blanca Pacheco
Submission Type: group
Faculty Sponsor(s) & Department(s): Ferol Mennen, Social Work
Format: Creative Work
Title: Young Adolescent Project: Analyzing Different Types of Abuse
Abstract: We will be exploring the various types of abuse (Physical Abuse, General Neglect, Sexual Abuse, Emotional Abuse and Parental Incapacity) in terms of frequency and strength across the two genders and ethnicities (Latino, Black, White, and Biracial). Furthermore we will compare DCFS diagnosis of case studies versus the categories our research team assigned.

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Category: Social Sciences
Name: Denicia Cormier
Submission Type: individual
Faculty Sponsor(s) & Department(s): Devon Brooks, School of Social Work; Jan Nissly, School of Social Work
Format: Creative Work
Title: Openness and Contact within Adoption
Abstract: Since the formalized inception of agencies in 1851, adoption was commonly practiced as a closed process. This form of adoption required that there be no exchange of information or contact of any kind between the adopting and biological parents, and that all decisions about who adopted which baby were to be made solely by agency personnel. At that time the only option for birth parents relinquishing their parental rights was to sever all ties to their children. It was not until recent decades that the turnaround occurred where open adoption began to dominate the practice. Unlike closed adoption, open adoption involves full contact and exchange between birth parents, adoptive children, and their adopted parents. The goals of open adoption are: to minimize the child's loss of relationships, maintain and celebrate the adopted child's connections with all the important people in their life, and allow the child to resolve losses with truth rather than the fantasy often created when no information or contact with their birth family is available. Although the empirical evidence shows strong support for the benefits of open adoption, much debate remains in the field regarding the impact open adoption has on the adopted child's well being. This project involves a critical review of the literature on open adoption in hopes that such a review of the proven benefits will be used to elevate research to the next stage of determining how it can best be used to support the unique dynamics of adoptive families.

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