32nd ANNUAL CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS OF THE 2011 SYMPOSIUM

Convened on

Wednesday, April 6, 2011

in the

University Business Center

California State University, Fresno

32nd ANNUAL
CENTRAL CALIFORNIA RESEARCH SYMPOSIUM

PROCEEDINGS

Sponsoring Institutions

California State University, Fresno

University of California, San Francisco
Fresno Medical Education Program

California School of Professional Psychology at Alliant International University

Fresno City College

American Chemical Society
San Joaquin Valley Section

Educational Employees Credit Union

Convened in the *University Business Center*
on the campus of

California State University, Fresno

Wednesday, April 6, 2011

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PREFACE

Welcome to the *32nd Annual Central California Research Symposium*.

From its inception, the purpose of this symposium has been to bring together investigators, students, and faculty from a variety of disciplines to share the results of their scholarly work. The continuation of these activities in the Central Valley is encouraged by this opportunity for exchange. We hope that all participants will gain new insights from this experience and that learning about the interests of other scholars will enrich their academic journey.

Abstracts for this year's event were reviewed and selected for presentation by the Symposium Coordinating Committee. In this review, the committee looked for a well-written abstract on a topic of scholarly merit.

This year *UCSF Fresno* has provided two cash awards for the best symposium presentation by a student--one for an undergraduate student and one for a graduate student. *California School of Professional Psychology at Alliant International University* has provided a cash award for the best poster presentation by a student. The *American Chemical Society, San Joaquin Valley Section* has sponsored a cash award for best science presentation. The *Office of the Provost* at *California State University, Fresno* has provided a cash award for best undergraduate poster and best undergraduate oral presentation. The *Division of Graduate Studies* at *California State University, Fresno* has provided a cash award for best graduate presentation. The *Craig School of Business* at *California State University, Fresno* has sponsored a cash award for best poster presentation. The *Central California Autism Center*, under the direction of Dr. Amanda Adams, has sponsored a cash award for best undergraduate presentation. The *Educational Employees Credit Union* has sponsored an award for best undergraduate presentation in Mathematical Sciences. The Davin Youngclarke Memorial Award, inaugurated in 2008 and sponsored by the *Office of Research and Sponsored Programs* at *California State University, Fresno*, is awarded to the presenter who best addresses a community issue with use of sophisticated and sound research methods. In addition to providing three cash awards, the *Office of Research and Sponsored Programs* at *California State University, Fresno* has planned and administered the symposium in cooperation with these institutions.

Presenters and guests are invited to a social hour following the concluding address and student awards ceremony, which will be held in the Alice Peters Auditorium in the University Business Center.

These proceedings are published as a permanent record of the work presented. We hope they will stimulate ideas for future work and subsequent symposia.

PLANNING COMMITTEE

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO
FRESNO MEDICAL EDUCATION PROGRAM

Donna Hudson, Ph.D.
Symposium Co-Chairperson

Loren Alving, M.D.
Ronna Mallios, Ph.D.
Paul K. Mills, Ph.D.
Michael Peterson, M.D.
Joan Voris, M.D.
Kent Yamaguchi, M.D.

CALIFORNIA STATE UNIVERSITY, FRESNO

Thomas McClanahan, Ph.D.
Symposium Co-Chairperson

Saeed Attar, Ph.D.
Sharon Benes, Ph.D.
Jason Bush, Ph.D.
Daniel Cady, Ph.D.
Alejandro Calderon-Urrea, Ph.D.
Doug Carey
Karen Carey, Ph.D.
Tamas Forgacs, Ph.D.
Gil Harootunian, Ph.D.
Alam Hasson, Ph.D.
Ramakrishna Nunna, Ph.D.
Karl Oswald, Ph.D.
Brian Tsukimura, Ph.D.

ALLIANT INTERNATIONAL UNIVERSITY, FRESNO

Siobhan O'Toole, Ph.D.

FRESNO CITY COLLEGE

Carl Johansson
Rick Stewart

EVENT AND PROCEEDINGS COORDINATORS

Millie C. Byers & Maral Kismetian
California State University, Fresno

CALIFORNIA
STATE
UNIVERSITY,
FRESNO

April 6, 2011

MESSAGE TO ALL RESEARCH SYMPOSIUM PARTICIPANTS

California State University, Fresno is pleased to serve as the host campus for the 32nd Annual Central California Research Symposium.

This symposium continues to provide a unique forum for the presentation and discussion of scholarly activities of interest to researchers throughout the Fresno Community. The program for the symposium reflects our commitment to promoting interdisciplinary research, encouraging scholarly exchange on theoretical and pragmatic topics, and providing an opportunity for both students and research scholars to share common interests. Cooperative efforts such as these benefit the individual institutions involved and ultimately the public that we all serve.

We appreciate your participation in this symposium, and it is my pleasure to extend my warmest welcome to our campus.

Sincerely,

John D. Welty
President

Office of the President
Harold H. Haak Administrative Center
Henry Madden Library, Suite 4104
5200 North Barton Ave. M/S ML48
Fresno, CA 93740-8014
559.278.2324
Fax 559.278.4715

University of California
San Francisco

UCSF

Fresno Medical Education Program

Office of the Associate Dean

UCSF Fresno Center for Medical Education & Research
155 N. Fresno Street
Fresno, CA 93701

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email: dean@fresno.ucsf.edu
www.fresno.ucsf.edu

WELCOME

32nd Annual Central California Research Symposium
April 6, 2011

Dear Symposium Participants and Visitors:

It is my pleasure to welcome each of you to the 32nd Annual Research Symposium. UCSF Fresno is very committed to conducting and supporting research, and this Symposium offers a wonderful venue to be able to review some exemplary local research projects. Every year I continue to be impressed by the diversity and quality of the research that is ongoing in the Central Valley, and it is exciting to witness the richness of academic activity that is evidenced here today. The studies represented here will lead to an improved quality of life for our communities, something we all care deeply about.

Whether you, are attending today as a participant or a visitor, I believe you will feel challenged and energized as you explore the research projects on display.

Sincerely,

Joan L. Voris, MD

Associate Dean, UCSF Fresno Medical Education Program
Assistant Clinical Professor of Pediatrics, UCSF

ALLIANT
INTERNATIONAL UNIVERSITY

President's Office
One Beach Street
Suite 200
San Francisco, CA
94133-1221
415.955.2000

Fresno
5130 E. Clinton Way
Fresno, CA
93727-2014
559.456.2777

Irvine
2500 Michelson Drive
Suite 250
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92612-1548
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1000 S. Fremont Avenue
Unit 5
Alhambra, CA
91803-8835
626.284.2777

Sacramento
2030 W. El Camino Ave.
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Sacramento, CA 95833
916.565.2955

San Francisco
One Beach Street
Suite 100
San Francisco, CA
94133-1221
415.955.2100

San Diego
10455 Pomerado Road
San Diego, CA
92131-1799
858.635.4000

Alliant Mexico
[Red de
Universidades S.C.]
Hamburgo #115
Col. Juarez
Mexico D.F., Mexico CP
06600
(52-55) 5525-7651

March 21, 2011

Dear Symposium Participants:

The Fresno campus of Alliant International University, offering Graduate programs in Psychology, Forensic Psychology, Organization Development, and Education is honored to be a sponsor of the 33rd Annual Central California Research Symposium. Alliant International University continues to seek opportunities to contribute to the advancement of the California Central Valley.

We are pleased to have this opportunity to support and participate in highlighting research achievements. Important research is being conducted at higher education institutions and hospitals in Central California. These institutions are also instrumentally involved with training the next generation of researchers.

By featuring the work of Central California researchers from diverse fields, the symposium provides an exciting view of the broad expanse of research taking place. We look forward to learning about the research you are conducting.

Respectfully,

Penny J. Schafer

Penny Schafer
Director of Campus and Student Services
Alliant International University, Fresno/Sacramento

Fresno City College
1101 East University Avenue, Fresno, California 93741 Phone: 559-442-4600 FAX: 559-265-5777

Office of the President

March 9, 2011

Symposium Participants
Central California Research Symposium
University Grants and Research Office
California State University, Fresno
4910 North Chestnut Avenue
Fresno, CA 93726-1852

Dear Symposium Participants:

Fresno City College is pleased to be a sponsor of the 32nd Annual Central California Research Symposium. This cooperative venture not only advances the frontiers of knowledge but leverages the research resources of each participating institution. Fresno City College is proud to be a partner in hosting this program and extends best wishes to all participants.

I hope the Symposium will be both informative and enjoyable for you.

Sincerely,

Cynthia E. Azari, Ed.D.
President

CEA/kq

Concurrent Session A

University Business Center
Auditorium, Room 191

9:00 a.m. ***Environmental effects on native and non-native copepod populations in San Francisco Bay***
Steven Gong, Brian Tsukimura, Ph.D.

9:15 a.m. ***The Effects of Fasting and Re-feeding on Growth and Glucose Metabolism in the Tilapia, Oreochromis mossambicus***
Rosemary Luzania, Larry G. Riley, Ph.D.

9:30 a.m. ***The role of methyl farnesoate as a reproductive regulator in the tadpole shrimp, Triops longicaudatus***
Michael Tran, Brian Tsukimura, Ph.D.

9:45 a.m. ***The distribution, foraging behavior, and habitat use of squirrels in an urban environment***
Jordan Anderson, Madhusudan Katti, Ph.D., Paul R. Crosbie, Ph.D., Stuart K. McFeeters, Ph.D., and Kaberi Kar Gupta, Ph.D.

10:00 a.m. ***Hormonal Regulation of Food Intake During Acute Stress in the Tilapia, Oreochromis mossambicus***
Kelli R. Upton, Larry G. Riley, Ph.D.

10:15 a.m. – 10:30 a.m. **Break- University Business Center, Gottschalks Gallery**

12:15 p.m. **Plenary Session**

Concurrent Session B

University Business Center
Room 192

9:15 a.m. ***Design and Development of an Interface Platform for use in High Energy Physics Experiments***
Lawrence E. Carlson, Dave Nelson, Su Dong, Martin Kocian, Yongsheng Gao, Ph.D.

9:30 a.m. ***Esense: Humidity, Temperature and Acceleration Logger***
Satbir S. Sekhon, Rendon Gomez, Samuel Gomez, Reza Raeisi, Ph.D.

9:45 a.m. ***Mechanistic Understanding of the Interactions of Proteins Involved in the formation of Alzheimer's Disease's β-Amyloid Plaques***
Michael Harbell, Joy Goto, Ph.D.

10:00 a.m. ***Spectroscopic Studies of a High Valent Manganese Complex: [MnIV(Me3TACN)(OMe)3]+***
Steven Chabolla, Robert Geiger, Timothy A. Jackson, Melissa Golden, Ph.D.

10:15 a.m. – 10:30 a.m. **Break- University Business Center, Gottschalks Gallery**

12:15 p.m. **Plenary Session**

Concurrent Session C

University Business Center
Room 286
Dean's Conference Room

9:00 a.m. ***Piping Erosion Mechanisms of Organic Soils and Bioabatement of Piping Erosion in Sand***
Benjamin T. Adams, Ming Xiao, Ph.D.

9:15 a.m. ***Seismic Performances of Slurry Walls***
Mathew Graham, Ming Xiao, Ph.D.

9:30 a.m. ***Screening of Methods for Removing Geosmin at a Municipal Water Plant in California's Central Valley***
William Wright, Ph.D.

9:45 a.m. ***FDI in Actuators***
Harbilas Bal, Nitaigour Mahalik, Ph.D.

10:00 a.m. ***Pathways for trans-disciplinary workforce development for food and ag industry through training and research***
Robert Martinez II, Nitaigour Mahalik, Ph.D.

10:15 a.m. – 10:30 a.m. **Break- University Business Center, Gottschalks Gallery**

12:15 p.m. **Plenary Session**

Concurrent Session D

University Business Center
Room 194

9:00 a.m. ***The Hijab and Feminism: What does it mean to be a Muslim-American Feminist Woman?***
Leila Alamri, Roksana Badruddoja, Ph.D.

9:15 a.m. ***Loving God, Loving Self: Intersections of gender, sexuality and faith***
Christine Mahackian, Roksana Badruddoja, Ph.D.

9:30 a.m. ***Anti-Semitism and the Discourse of the Israel-Palestine Conflict***
Joshua Sten, Andrew Fiala, Ph.D.

9:45 a.m. ***The Works of Doña Josefa Amary Borbón: From Conservative to Radical Enlightenment in Spain***
Paulette Alatriste, Maritere Lopez, Ph.D.

10:00 a.m. ***The Myths Of Maternal Thinking: What Does It Mean To Be A Mother In America***
Johanna Leal, Roksana Badruddoja, Ph.D.

10:15 a.m. – 10:30 a.m. **Break- University Business Center, Gottschalks Gallery**

12:15 p.m. **Plenary Session**

Concurrent Session E

University Business Center
Auditorium, Room 191

10:30 a.m. ***Two-dimensional gel electrophoresis and mass spectrometry to analayse Drosophila melanogaster proteome in response to the neurotoxin β-N-methylamino-L-alanine (BMAA)***
Amish B. Karanjit, Joy Goto, Ph.D.

10:45 a.m. ***Kinetics and Mechanism of the reaction Propylene Oxide (PPO) in the Troposphere***
Srikar Middala, Sean Campbell, Austen Scruggs, Catalina Olea, Alam Hasson, Ph.D.

11:00 a.m. ***Modified Synthesis of (Bis(O-ethyl-L-cysteinato)Ni)2Ni***
Randall Hart, Melissa Golden, Ph.D.

11:15 a.m. ***The Oxygenation of Bis(O-ethyl-L-cysteinato)nickel(II)***
Samantha J. Gustafson, Melissa Golden, Ph.D.

11:30 a.m. ***Characterizing the Neurodegenerative Specificity of BMAA to Determine a Potential Link between Exposure to the Toxin and the Development of ALS/PDC***
Savann Hok, Joy J. Goto, Ph.D.

12:15 p.m. **Plenary Session**

1:30 p.m. – 1:45 p.m. **Break- University Business Center, Gottschalks Gallery**

Concurrent Session F

University Business Center
Room 192

10:30 a.m. ***A polynomial invariant of 3-valent graphs embedded in the 3-space***
James Tipton, Carmen Caprau, Ph.D.

10:45 a.m. ***On multiplier sequences of a special form for finite fields***
Mario Banuelos, Michelle Hoshiko, Tamas Forgacs, Ph.D.

11:00 a.m. ***On Multiplier Sequences for Simple Sets of Polynomials***
Benjamin Wright, James Tipton, Tamas Forgacs, Ph.D.

11:15 a.m. ***Explaining Hydrodynamic Dispersion using Measurable Physical Properties***
Juan P. Lopez Arriaza, Teamrat Ghezzehei, Ph.D.

11:30 a.m. ***Base-X: Bridging the Cognitive Gap between Arithmetic and Algebra***
Lance Burger, Ph.D.

12:15 p.m. **Plenary Session**

1:30 p.m. – 1:45 p.m. **Break- University Business Center, Gottschalks Gallery**

Concurrent Session G

University Business Center
Room 286
Dean's Conference Room

10:30 a.m. ***Werther's Nash equilibrium: complicating "madness" in Goethe's The Sorrows of Young Werther***
Kristin Baer, Toni Wein, Ph.D.

10:45 a.m. ***Wit and Humor in a Man's World: Aphra Behn's Feminine Language***
Cheri Y. Halvorson,Toni Wein, Ph.D.

11:00 a.m. ***An Examination of Rape in Early Modern Literature***
Lisa McHarry, Toni Wein, Ph.D.

11:15 a.m. ***The Sighing, Bleeding, Feasting Soul: Speech Scrolls in Mesoamerica***
Meghan Cartier, Keith Jordan, Ph.D.

11:30 a.m. ***The Abcd Conundrum: Women, Marriage, And Alternative Formations Of Power***
Roksana Badruddoja, Ph.D.

12:15 p.m. **Plenary Session**

1:30 p.m. – 1:45 p.m. **Break- University Business Center, Gottschalks Gallery**

Concurrent Session H

University Business Center
Room 194

10:30 a.m. ***Website Usability Analysis – Fresno State's Henry Madden Library***
Jason McClung, Mark Cabrera, Henry Delcore, Ph.D., James Mullooly, Ph.D.

10:45 a.m. ***Interpersonal Communication in the Digital World***
Mariam Mohammad, Sally Murphy, Ph.D.

11:00 a.m. ***Textbook Study***
Selena Farnesi, Cody Madsen, James Mullooly, Ph.D.

11:15 a.m. ***Assessing Lesson Complexity and Teaching Behaviors in Sport***
Brian Riddle, Wade Gilbert, Ph.D.

11:30 a.m. ***Youth Spoken Word: Expression, Activism, and the Cycle of Poetry***
Sandra Huerta Baca, Natalie Boero, Ph.D.

12:15 p.m. **Plenary Session**

1:30 p.m. – 1:45 p.m. **Break- University Business Center, Gottschalks Gallery**

Plenary Session — University Business Center, Auditorium, Room 191

12:15 p.m. Opening Remarks and Welcome

Dr. Thomas McClanahan, California State University, Fresno

Dr. Donna Hudson, University of California, San Francisco
Fresno Medical Education Program

12:25 p.m. ***The Incidence of Congenital Anomalies in a Single Perinatology Practice in the California Central Valley***
Teresa Elena Munoz, Rena Hu, Amy Teng, Brian Morgan, Ph.D.

12:40 p.m. ***The stress response: A look at the difference between Mexican-Americans and Caucasians***
Carlos Anthony Cassillas, Brittany Rudd, Amanda Mortimer, Ph.D.

12:55 p.m. ***Timekeeping Mechanism of a Cyanobacteria Circadian Oscillator***
Roger Tseng, Yong-Gang Chang, Nai-Wei Kuo, Andy LiWang, Ph.D.

1:10 p.m. ***Emissions Measurements of Volatile Organic Compounds from a San Joaquin Valley Dairy***
Kennedy Vu, Lucien Nana, Srikar Middala, Jeff Cole, Catalina Olea, Austen Scruggs, Shawn Ashkan, Julie Steele, Stacy Brown, Segun Ogunjemiyo, Ph.D., Alam Hasson, Ph.D.

1:30 p.m. – 1:45 p.m. **Break- University Business Center, Gottschalks Gallery**

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session I

University Business Center
Auditorium, Room 191

1:45 p.m. ***When Viewpoint Matters: How Narrative Perspective and Social Distance Influence Virtual Agent Placement***
Justin L. Matthews, Teenie Matlock, Ph.D.

2:00 p.m. ***From Trauma To Triumph: Emotional Regulation In The Presence Of Chronic Pain And The Relationship To Depressive Symptoms And Coping Skills***
Robyn M. Richardson, Manuel Figueroa, Ph.D.

2:15 p.m. ***Looking at How Affordances Change Viewpoint***
Michelle D. Greenwood, Michael J. Spivey, Ph.D.

2:30 p.m. ***The effects of proximity, written prompts, and public posting on recycling at a university setting***
Angelica Aguirre. Criss Wilhite, M.A., B.C.B.A., Marianne Jackson, Ph.D., B.C.B.A., Amanda Adams, Ph.D., B.C.B.A.

2:45 p.m. ***Motion perception using a critical branching neural network***
Janelle Szary, Christopher Kello, Ph.D.

3:00 – 3:15 p.m. **Break- University Business Center, Gottschalks Gallery**

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session J

University Business Center
Room 192

1:45 p.m. ***Entangled! The Quantum Behavior of Light***
Arya Afshari, Clint Hawkins, Sky King, Courtney Lemon, Mathew Robison, Donald Woods, Barbara Hoeling, Ph.D., Yongsheng Gao, Ph.D.

2:00 p.m. ***Development of Mirrors for the CLAS12 High Threshold Cerenkov Counter***
Emmanuel Angulo, Youri Sharabian, John Price, Ph.D.

2:15 p.m. ***Synthesis and Analysis of Rare-Earth Gadolinium Nanoparticles***
Jose Amaral, Dulce Romero, Dennis Margosan, Saeed Attar, Ph.D., Melissa Golden, Ph.D., Pei-Chun Ho, Ph.D.

2:30 p.m. ***Detecting W and Z Bosons at the ATLAS Experiment of the Large Hadron Collider at CERN***
Brent Wilson, Harinder Bawa, Yongsheng Gao, Ph.D.

2:45 p.m. ***Relationship of Time-Management Behaviors to the Effectiveness of Chemistry Prelab Assignments***
Deborah L. Lair, Anne Zanzucchi, Ph.D.

3:00 – 3:15 p.m. **Break- University Business Center, Gottschalks Gallery**

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session K

University Business Center
Room 194

1:45 p.m. ***Perceived Stressors: Differences Between Mexican American and Caucasian College Students***
Brittany N. Rudd, Carlos Cassillas, Amanda R. Mortimer, Ph.D.

2:00 p.m. ***The Lexical Effects of Visual Similarity Structure on Audiovisual Spoken Word Recognition***
Vincent Aguirre, Lorin Lachs, Ph.D.

2:15 p.m. ***Prompting to Improve Academic Performance In Children with Autism***
Ryanne Amomonpon, Amanda Adams, Ph.D.

2:30 p.m. ***A Community Perspective on Obesity***
Jacqueline Cortez, Adrianna Salinas, Raymond Ramirez, Henry Delcore, Ph.D.

2:45 p.m. ***GIS Asset Mapping of the City of Merced: A Collaboration between university students and the community***
Johnny Moua, Elaine Lai, Stergious Roussos, Ph.D.

3:00 – 3:15 p.m. **Break- University Business Center, Gottschalks Gallery**

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session L

University Business Center
Auditorium, Room 191

3:15 p.m. . ***Reading a Myth in the Passing of a Hmong Leader***
Kao-Ly Yang, Ph.D.

3:30 p.m. ***The effects of neurotoxin BMAA on motor control in fruit flies***
Nalong Mekdara, Ulrike Müller, Ph.D.

3:45 p.m. ***Investigating the expression dynamics of cell adhesion genes during gastrulation in Nematostella vectensis***
Aditi Prashar, Craig R. Magie, Ph.D.

4:00 p.m. ***Selenium Incorporation and Partitioning in 'Jose' Tall Wheat Grass (Thinopyrum ponticum cv. Jose) Irrigated with Saline Drainage Water***
Jaya Ram K.C., Sharon Benes, Ph.D., Peter Robinson, Stephen Grattan, Suduan Gao, John Bushoven, Ph.D.

4:15 p.m. ***Effect of plant density and nitrogen on Sweet corn yield and quality***
Nathalia Mourad, Ganesan Srinivasan, Ph.D., Anil Shrestha, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session M

University Business Center
Room 192

3:15 p.m. ***Suicide (Jisatsu) and Groupism (Shuudan) in Japan***
Kelly Olsson, Steve Stryker, Ph.D.

3:30 p.m. ***It suits him: Perpetuating Evo Morales' media image in blogs***
Maira Blanco, Natalie Boero, Ph.D.

3:45 p.m. ***Reasoning Sessions with Irie Vatos: Mexican-American Rastafari Identity***
Monique Posadas, Jan English-Lueck, Ph.D.

4:00 p.m. ***Performing in Prison: An Exploration of Gender Performance and Sexuality, Hegemonic Masculinity, and Male Prisons as a Gendered Setting***
Emmajean Balmonte Johnson, Susan Murray, Ph.D.

4:15 p.m. ***Key factors of recidivism in convicted Interpersonal Violence offenders: A qualitative study***
Joshua L. Paulos, Gretchen Reevy, Ph.D.

4:30 p.m. ***Testing Student Knowledge: Perception towards Misdemeanor Charges and Consequences of Restricted Access***
Krystaelynne Sanders, Julie Beck, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session N

University Business Center
Room 286
Dean's Conference Room

3:15 p.m. ***Uncovering the Essence of Music in Exercise Experiences***
Melissa M. Flores, Jenelle N. Gilbert, Ph.D., Wade Gilbert, Ph.D.

3:30 p.m. ***Coaching Education in Action: Observations from Pilot Studies in Youth Sport Settings***
Rachael Bertram, Wade Gilbert, Ph.D.

3:45 p.m. ***Elite Coaching Effectiveness in Action: A Mid-Season Review***
Nate Ferrante, Matt Emmett, Tim Hamel, Wade Gilbert, Ph.D.

4:00 p.m. ***Verbal Morphophonology in Chukchansi Yokuts***
Peter Ara Guekguezian, Chris Golston, Ph.D.

4:15 p.m. ***Differences In Ratings Of Quality Of Life Between Spouses Within An Older, Married Population intThe Central Valley***
Garrett M. Koslan, Amanda R. Mortimer, Ph.D.

4:30 p.m. ***Fielding a Psychoeducational Shame Resilience Curriculum to Women in Substance Abuse Treatment***
Virginia Rondero Hernandez, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Concurrent Session O

University Business Center
Room 194

3:30 p.m. ***Measurement of Dairy Emissions Using Infra-Red Photoaccoustic Detection***
Austen Scruggs, Sean Campbell, Catalina Olea, Alvaro Sosa, Lucien Nana, Kennedy Vu, Srikar Middala, Alam Hasson, Ph.D.

3:45 p.m. ***Providing Affordable Wastewater Treatment with Environmental Benefits to Small, Rural Disadvantaged Communities***
Steven Garcia, William Wright, Ph.D.

4:00 p.m. ***Isolating and Identifying Bacillus Species***
Tori Kennedy, M. Ganci, M. Thomas, Mamta Rawat, Ph.D.

4:15 p.m. ***Growth of Chloropicrin-degrading Microbes***
Javier Garcia, Alice Wright, Ph.D.

4:30 p.m. ***Sea turtle nesting as a process that impacts beach ecosystems***
Erinn Madden, Derek Madden, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Poster Session I
9:00 a.m. until 10:30 a.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 9:00 a.m. until 10:30 a.m.

(1) ***The Sociolinguistic Network: Tracking Generational Change in Sociolinguistic Preferences with Social Networking***
Jessica Harmon, Katherine Urabe, Chris Golston, Ph.D.

(2) ***Vintage Costume Collection: Saving our history for tomorrow***
Lauren Meade, Kelsey Oliver, Elizabeth Payne, Ph.D.

(3) ***The 12 Untold Stories***
Nu Vang, Gary Rice, Ph.D.

(4) ***The Effect of Depression Screening Days on Students Attitudes Toward Depression When They Miss the Event***
Danny M. Pavlovich, Casey M. Cauble, Christine Edmonson Ph.D., Rebecca Raya-Fernandez, Ph.D.

(5) ***An Evaluation of Increased Choice Opportunities during Less Preferred Activities for Children with Autism***
Katie Turner, Amanda Adams, Ph.D., BCBA-D

(6) ***The Modality and Intervallic Relationships in Agreeable and Disagreeable Dyadic Conversation***
Brooke Okada, Benjamin Boone, Lorin Lachs, Ph.D.

(7) ***Evaluating iPad Technology for Improving Communication Initiation for Children with Autism***
Gina Gavrilis, Amanda Adams, Ph.D.

(8) ***Analyzing Various Methods of Immediate Feedback using Clicker Response System***
Dario T. Santiago, Danny M. Pavlovich, Karl M. Oswald, Ph.D.

(9) ***Programming for Generalization of Perspective-Taking Abilities using Deictic Relational Responding in Children with Autism***
Amber M. Candido, Marianne Jackson, Ph.D., B.C.B.A

(10) ***The Role of Non-Muscle Myosin II in Early Cleavage Development and Gastrulation of the Cnidarian Nematostella Vectensis***
William A. Whalen, Craig Magie, Ph.D.

Poster Session I continued
9:00 a.m. until 10:30 a.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 9:00 a.m. until 10:30 a.m.

(11) ***Sub-millisecond kinematics of bladderwort, the fastest known suction feeder***
Matthew Brown, Ulrike K Müller, Ph.D.

(12) ***Alteration of caveolin expression in differing integrin backgrounds: implications for tumor cell motility***
Jinsha Liu, Nathan L. Piestrup, Jason A. Bush, Ph.D.

(13) ***cGMP production in Escherichia coli***
Simranjeet Grover, Joel Curiel, Hwan Youn, Ph.D.

(14) ***Carbon, nitrogen and growth: A comparison of physiological characteristics of native and invasive plant species***
Conrad Braganza, Gagandeep Singh Rajpa, John V.H. Constable, Ph.D.

(15) ***The Effects of Manganese Toxicity on Motor Activity in Drosophila melanogaster***
Bradley Kroeker, Lana R. McGinnis, Shereen Dimes, Joy Goto, Ph.D.

(16) ***Morphological Variation in Hair Morphology From Mammals of the Order of Artiodactyla***
Elsbeth S. Murata, Michael V. Gonzalez, Kevin W.P. Miller, Ph.D.

(17) ***A novel lenticular walking arena to quantify locomotory competence in fruit flies***
S. Choudhury, N. T. Mekdara, M. J. Adam, J. J. Goto, O. Berg, U. K. Müller, Ph.D.

(18) ***The Determination of Tadalafil in rat plasma by high-performance liquid chromatography with UV detection***
Selemawit T. Ghebrendrias , Xee Vang 1, Kennedy – Kiet T. Vu , Glenda Polack, Alam Hasson, Ph.D.

(19) ***Synthesis and Structural Studies of Bis(O-methyl-L-cysteinato)nickel(II)***
Jonathan M. Powell, Steven A. Chabolla, Teresa L. Mendoza, Melissa L. Golden, Ph.D.

(20) ***Effects of L-Glutamic Monosodium Hydrate on Drosophila Locomotion and q Viability***
Madhubanti Chowdhury, Joy J. Goto, Ph.D.

Poster Session I continued
9:00 a.m. until 10:30 a.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 9:00 a.m. until 10:30 a.m.

(21) ***A Laboratory Investigation of the Reaction of Isoprene with NO3 Radicals***
Catalina Olea, Srikar Middala, Lucien Nana, Kennedy Vu, Alvaro Sosa Austen Scruggs, Ramya Addala, Alam Hasson, Ph.D.

(22) ***Synthesis, characterization, and gas phase study of isoprene nitrates***
Jeffrey J Jackson, Max Stephenson, Jeffrey Cole, Ronald L Marhenke, Alam S Hasson, Ph.D., Santanu Maitra, Ph.D.

(23) ***Conformational analysis of analogs of DEET focusing on the restricted rotation of the C-N bond using molecular modeling and VT NMR study***
William Thompson, Santanu Maitra, Ph.D., Krish Krishnan, Ph.D.

(24) ***Identification of VOCs from Dairy Emissions***
Jeff Cole, Srikar Middala, Austin Scruggs, Catalina Olea, Lucien Nana, Alam Hasson, Ph.D.

(25) ***NMR Studies of Bis(O-ethyl-L-cysteinato)Nickel(II)***
Arturo Gasga, Samantha Gustafson, Gregory Harnden, Melissa L. Golden, Ph.D.

(26) ***Nickel Induced Oxygen Damage of Biological Molecules***
Gregory Harnden, Melissa Golden, Ph.D.

(27) ***Second Law Optimization of a Thermal Flat Panel Solar Collector***
Mario H. Saldana, Ira Sorensen, Ph.D.

12:15 p.m. **Plenary Session**

Poster Session II
11:00 a.m. until 12:30 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 11:00 a.m. until 12:30 p.m.

(1) ***Mechanization of Cut Flower Harvest***
John Clark, Balaji Sethuramasamyraja, Ph.D.

(2) ***Architecture and design of simulation platform for DCS***
My Viet Dang, K. Gilhotra, Nitaigour Mahalik, Ph.D.

(3) ***Geo-Spatial Yield Monitoring Technology for Mechanized Almond Harvest***
Sheenam Mehta, Sunny Sehgal, Balaji Sethuramasamyraja, Ph.D.

(4) ***Use of Selenium-enriched Mustard and Soy Seed Meals as Potential Bioherbicides and Green Fertilizer in Organic Spinach and Broccoli Production***
Annabel Rodriguez, Gary Banuelos, Sajeemas Pasakdee, Ph.D., Anil Shrestha, Ph.D.

(5) ***Preliminary screening of suspected glyphosate resistance in Palmer Amaranth (Amaranthus palmeri) in the Central Valley finds negative results***
Jeff Gallagher, Marcelo Moretti, Anil Shrestha, Ph.D.

(6) ***Magma Mixing as Recorded in Inclusion-Host Interactions of Lassen Volcanic Center, California***
Alaina Wood, Keith Lutirka, Ph.D.

(7) ***Determining the Habitat Preference of Sand Lance (Ammodytes hexapterus) Using Multibeam Bathymetry in the San Juan Islands, Washington***
Elizabeth Davidson, H. Gary Greene, Fraka Harmsen, Ph.D.

(8) ***Order within the chaotic: Franciscan Complex field relations show km-scale overturned folds, an olistostrome deposited on intra-Franciscan serpentinite, and more***
Rachel Prohoroff, John Wakabayashi, Ph.D.

(9) ***Etuku Member of the Mamfe Basin Formation, Cameroon West-Central Africa: Potential Hydrocarbon Reservoir***
Lucien Nana, Fraka Harmsen, Ph.D.

(10) ***Revisiting the Tectonic Setting of Mesozoic Volcanism, Central Sierra Nevada, California***
Jennifer Ratliff, Keith Putirka, Ph.D., John Wakabayashi, Ph.D.

Poster Session II continued
11:00 a.m. until 12:30 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 11:00 a.m. until 12:30 p.m.

(11) ***Inhibition of Lysosomal Proteases Induces Accumulation of Fragments of IGF-1 Receptor Beta Subunit in Neuroblastoma Cells***
Ikechuwkwu Ollawa, Mehrnoosh Soori, Guizhen Lu, Robert W. Mason, Jesus Cisneros, Ph.D.

(12) ***Synthesis and Characterization of Low Dimensional Boron Carbide Nanostructures***
Sung-kyu Lee, D. Zhang, Ph.D.

(13) ***Comparison of the sensitivity of parallel hole and slit-slat collimator arrays in breast spect***
Carmin Liang, Charles Tenney, Ph.D.

(14) ***A Critical Analysis of Three Methods Of Estimating Distances To Cataclysmic Variables***
Michael J. Gariety, F. A. Ringwald, Ph.D.

(15) ***Analyzing atlas simulation data to search for new particles***
Navid K. Rad, Yongsheng Gao, Ph.D.

(16) ***Analytical Solutions For Volume Sensitivity of Slit-Slat Collimators in Nuclear Medical Imaging***
Joseph DiPirro, Charles Tenney, Ph.D.

(17) ***Waves in Accretion Disks, Observed with Fresno State's Station at Sierra Remote Observatories: HV Andromedae, LQ Pegasi, and LN Ursae Majoris***
Gerald D. Rude, Frederick Ringwald, Ph.D.

(18) ***Bacterial endophyte diversity in the lodgepole pine***
Emily C. Wilson, Carolin Frank, Ph.D.

(19) ***Effects of Low Temperature Fire on Soil Aggregate Stability***
Ammar A. Abalasmeh, Teamrat A. Ghezzehei, Ph.D.

Poster Session II continued
11:00 a.m. until 12:30 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 11:00 a.m. until 12:30 p.m.

(20) ***Angiotensin Receptor Blockade Decreases Hepatic Triglyceride Content and Reduces Retroperitoneal Fat Deposition Following Increased Glucose Intake in a Model of Metabolic Syndrome***
Priscilla Montez, Ruben Rodriguez, Jose Viscarra, Daisuke Nakano, Akira Nishiyam, Rudy M. Ortiz, Ph.D.

(21) ***Diversity in Genes for Pesticide Degradation***
A. Iness, H. Deol, I. Gutierrez, A. Torbio, A. Wright, Ph.D.

(22) ***Proteomic Evaluation of Pesticide-Resistant Breast Cancer Cell Lines***
Julie Hale, Fiona Yamamoto, Jason Bush, Ph.D.

(23) ***Latina farmworkers of the San Joaquin Valley with polymorphisms in xenobiotic-metabolizing genes have elevated risk of breast cancer***
Yesenia Ibarra, Malika Sahni, Kathryn Patterson, Jessica Borba, Jason Bush, Ph.D., Paul Mills, Ph.D.

(24) ***Fret Analysis Of The Interaction Between Alzheimer's Disease Related Proteins, App And X11***
Niranjan K. Sudhakar, Joy J. Goto, Ph.D.

(25) ***Comparison of body mass index, waist to hip ratio as predictors of body fat in overweight or obese adults***
Wenjing Liu, M.D., Ph.D., Ashkan Imanzahrai, M.D., John Monteleone, M.D., Susan Hughes

(26) ***Serum ammonia level does not affect anion gap measurement***
Chunxia (Tracy) Li, M.D., Ph.D., Roger Mortimer, M.D., Susan Hughes

(27) ***Utility of a diabetes themed fotonovela to reduce hyperglycemia in Latino diabetics***
Roger Mortimer, M.D., Victoria Sorlie-Aguilar, M.D., Juan Carlos Ruvalcaba, M.D., Saire Guzman; Lily Peng, Ph.D., Melvin F Baron, Pharm.D.

12:15 p.m. **Plenary Session**

Poster Session III
1:30 p.m. until 3:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 1:30 p.m. until 3:00 p.m.

(1) ***Feature-based Stereotyping: The Effects of Appearance on Perceived Social Misconduct and Academic Success***
Emily Winden, Jean Ritter, Ph.D.

(2) ***The Effect Of Phonologically Similar Word Forms On Crossmodal Source Identification***
Jessica Dao, Lorin Lachs, Ph.D.

(3) ***Achievement Gap between English Language Learners and Non-English Language Learners in Reading Test Performance***
Rocio Luna, Jason C. Immekus, Ph.D.

(4) ***A Look at Ethnic Identity and Acculturation Within the Mien Community***
Nai Saetern, Clifton Oyamot, Ph.D.

(5) ***Improving Classroom Clicker Practices: The Effects Of Academic Incentives And Feedback On Learning Outcomes***
Stephanie E. Butler, Karl M. Oswald, Ph.D.

(6) ***Identifying Intermittent Explosive Disorder (IED) by Facial Expressions***
Kelly Jo Williams, Christine Edmondson, Ph.D.

(7) ***Alcohol's effects on short-and -long-term memory for novel environments in the Zebrafish (Danio TRerio)***
Jessica D Russell, Daniel Cerutti, Ph.D.

(8) ***An Ethnography of Water Birth and Its Representations on YouTube.com***
Samantha Paine, Jan English-Lueck, Ph.D.

(9) ***Do You Get Me? Exploring Cross-Cultural Communication Between Refugees and Health Practitioners***
Kayla Marie Haynes, Lisa Henry, Ph.D.

(10) ***Marriage, Divorce and Religiosity: A Qualitative-Study of Iranians in the 21st Century and the Interplay of Religiosity and the Marital Process***
Dijana Sirovica, Susan Bell Murray, Ph.D.

Poster Session III continued
1:30 p.m. until 3:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 1:30 p.m. until 3:00 p.m.

(11) ***Islamic Revivalism and Hizb-ut-Tahrir in Kyrgyzstan: Why the Uzbek Population Must be Considered***
Danielle Lemi, Constantine Danopoulos, Ph.D.

(12) ***Individualism and Collectivism in the U.S. and Iran: Implication for U.S.-Iran Relations***
Eleanor Lovinfosse, Persis Karim, Ph.D.

(13) ***Leader-Member Exchange (LMX) within Educational Institutions***
Hela Hassani, Thomas Long, Ph.D.

(14) ***Globalization Of Business: The Relationship Between Students' Willingness To Seek Employment In Global Corporations And The Improvement Of Intercultural Skills And Global Knowledge***
Maria Ramos, Priscilla Chaffe-Stengel, Ph.D., Rudy J. Sanchez, Ph.D.

(15) ***Ex-Offenders in the Workplace: Employee Reactions***
Rhiannon Gardenhire, William Bommer, Ph.D. , Rudy Sanchez, Ph.D.

(16) ***Viewer Perception of Product Placement***
Michelle Rovella, Susan Geringer, Ph.D.

(17) ***Synthesis, characterization and biological screening of apolipoprotein-E (apoE) modulators based upon a triaryl-substituted pharmacophore***
Robert T. Granata, Harkiran Dhah, Mandeep Singh, Jason Welles, Hafeez Oseni-Olalemi, Bellal Moghis, Jason Schott, Diana Wohlt, Andrew Surman, Nilay Patel, Ph.D., Santanu Maitra, Ph.D.

(18) ***Correlation Between Phytophthora capsici Disease Resistance in Pepper and the Presence of Resistance QTL, Phyto 5.2***
Heather Brewer, Claudia Garcia, Davis Cheng, Gurmel Sidhu, James P. Prince, Ph.D.

(19) ***A candidate gene strategy to identify resistance genes in pepper to Phytophthora capsici***
Deanna Arsala, Alyssa Bautista, Shayla Duran, Jim Prince, Ph.D.

Poster Session III continued
1:30 p.m. until 3:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 1:30 p.m. until 3:00 p.m.

(20) ***DNA recognition of the Escherichia coli cAMP receptor protein***
Andres Nevarez, Matt Hicks, Hwan Youn, Ph.D.

(21) ***Anti-Angiogenic Effects of Zoledronic Acid on Breast Cancer and Bone Metastases***
Cynthia Contreras, Walid Hamud, Bishal Dhakal, Jason Bush, Ph.D.

(22) ***Optimizing a differentiation strategy for generation of embryonic stem cell-derived cardiomyocytes***
Megha Kumar, Amandeep Singh, Simarjot Chehal, Jason Bush, Ph.D.

(23) ***Prevalence of Baylisascaris procyonis (Nematoda: Ascaridida) in Peri-domestic Raccoons (Procyon lotor) from Stanislaus County, California***
Erika T. Gendron, Steven P. Galentine, Paul R. Crosbie, Ph.D.

(24) ***Geochemical Correlation of Ricardo Volcanics, California, and Summit Range Volcanics, California***
David Real, David R. Jessey, Cami Jo Anderson, Keith Putirka, Ph.D.

(25) ***Substrate Variations and its Relationship and Impact on the Distribution of Eelgrass Beds in Griffin Bay, Washington***
Amina Sopha1, Gary Greene, Sandy Wyllie-Echeverria, Fraka Harmsen, Ph.D.

(26) ***Age Constraint And Degree Of Metamorphism Of The Turtleback Complex On Orcas Island, San Juan Islands, Washington***
Kiersti R. Ford, Gary Greene, Fraka Harmsen, Keith Putirka, Ph.D.

(27) ***Vertical Ozone Transport in the Lower Atmosphere and Analysis of Historic Pollution Data***
Stacy Brown, Segun Ogunjemiyo, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Poster Session IV
3:30 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:30 p.m. until 5:00 p.m.

(1) ***Staff Training Protocol to Increase Interaction During Non-Structured Time with Children with Autism***
Mari Orita, Amanda Adams, Ph.D., BCBA

(2) **Is 87 out of 10,000 "Riskier" than 0.87 out of 100? The Role of Denominator Neglect in the Ratio Bias**
Adrienne Fairchild, Paul Price, Ph.D.

(3) ***Stress and Anger as Predictors of Depression in Multi-Cultural***
Ryan Holliday, Christine Edmondson, Ph.D.

(4) ***Domain-Specific Critical Thinking and Religious Beliefs***
Sara Stein-Torres, Karl Oswald, Ph.D.

(5) ***Formation of false memories through schematic interference and their influence on social judgment***
Mikayel Yegiyan, Karl Oswald, Ph.D.

(6) ***Non-religious attributions to ambiguous situations***
Joseph A. Wagoner, Robert Levine, Ph.D.

(7) ***Fresno County Behavioral Health Court Project***
J. Tangye, P. Kruger, A. Karas, Peter English, Ph.D.

(8) ***Interdisciplinary Perspectives on What Facilitates Timel Referral to Palliative Care for Children with Serious Illness in Fresno, California***
Caroline L. Dezan, Debra Harris, Ph.D.

(9) ***An Exploratory Study On Social Workers' Attitudes And Practices With Gay And Lesbian Clients***
Joanna Zamora, Mitzi Lowe, Ph.D.

(10) ***Vietnamese Americans' Communication Assertiveness and How They Perceive Their Parents Disciplinary Styles***
Andrew Ha, Clifton Oyamot, Ph.D.

Poster Session IV continued
3:30 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:30 p.m. until 5:00 p.m.

(11) ***Exploring Impulsivity and Inhibition in Inividuals with Traits of Intermittent Explosive Disorder and Psychopathy***
Ashley Yaugher, Christine Edmondson, Ph.D.

(12) ***Does examining cognitive styles assist in the development of interventions for improving meaning in life? A preliminary analysis***
Taleisha Jones, Jennifer Gregg, Ph.D.

(13) ***Social Anxiety: Evaluating the impact of psychological flexibility on emotion regulation and meaning in life***
Kemisha James, Jennifer Gregg, Ph.D.

(14) ***Effects of Acculturation on Marital Satisfaction in Elderly Mexican-American Couples***
Normalinda Cantu, Amanda Mortimer, Ph.D.

(15) ***An Analysis of Forced-Choice Preference Assessment Changes Over Time***
Pao Hang, Jonathan Briggs, Ricky Garcia, Kathryn Murphy, Rosaura Pena, Carrie Dempsey, Ph.D.

(16) ***BMAA, a glutamate agonist, affects walking performance of fruit flies through the central pattern generator***
A. Goodarzi, N. T. Mekdara, S. Choudhury, A. Soltani, A. Qureshi, P. J. Mekdara, M. Adam, O. Berg, J. J. Goto, Ph.D., U. K. Müller, Ph.D.

(17) ***Divide and Conquer: Identification and Validation of Minimal Domains of CED-4 to Induce Cell Death in Meloidogyne incognita***
Harinder Singh, Justin Deffebach, Krish Krishnan, Ph.D., Alejandro Calderón-Urrea, Ph.D.

(18) ***Quantifying Thiol Levels in Cyanobacteria Under Varying Metal Stress***
Andrew W. Strankman, Mamta Rawat, Ph.D.

(19) ***Association mapping of tolerance genes in Populus clones with the use of simple sequence repeat (SSR) markers and candidate genes***
Nathan Follen, Kyan Salehi, Davis W. Cheng, Gary Bañuelos, James P. Prince, Ph.D.

Poster Session IV continued
3:30 p.m. until 5:00 p.m.

University Business Center
Gottschalks Gallery

Authors will be available for questions from 3:30 p.m. until 5:00 p.m.

(20) ***Thaumatin-Like Proteins Potentially Function in Disease Resistance to Phytophthora capsici in Pepper Plants***
Davis Cheng, Helen Cheng, Claudia Garcia, Heather Brewer, Gurmel Sidhu, James Prince, Ph.D.

(21) ***HPLC analysis to quantify the neurotoxic Betamethylamino-l-alanine (BMAA) levels in fruit fly***
Anjaneya K. Sinha, Joy Goto, Ph.D.

(22) ***Identification of Developmental Biomarkers in the Algae Dunaliella primolecta Using NMR-based Metabolomics***
Alexander Guzzetta, Adrina Shamlian, Krish Krishnan, Ph.D., Alejandro Calderón-Urrea, Ph.D.

(23) ***Thiols are involved in protection against metal stress***
Kathryn Barretto, Ruzan Orkusyan, Mamta Rawat, Ph.D.

(24) ***Optimum temperatures for two biotypes of horseweed (Conyza canadensis) and hairy fleabane (C. bonariensis) germination***
Katrina Maria C. Steinhauer, Anil Shrestha, Ph.D.

(25) ***Invertebrate Drift Dynamics of the San Joaquin River***
Zachary Foster, Tim Lewis, Mike Grill, Sarah Rutherford, Steve Blumenshine, Ph.D.

(26) ***Transgenic line of Caenorhabditis elegans expressing GFP and RFP markers: establishment of tools to study early development of the plant parasitic nematode Meloidogyne incognita***
Eliana Sanchez, April Booth, Alejandro Calderón-Urrea, Ph.D.

(27) ***Hepatitis C virus increases the level of NAD(P)H oxidase 4 in human hepatoma cells in a transforming growth factor beta 1-dependent manner***
Aparna Pasumarthi, Shelley Wang, Thu Vo, Jinah Choi, Ph.D.

(28) ***Investigating the Effects of a Selenium-enriched Diet on Growth and Metabolism in Tilapia (Oreochromis mossambicus)***
Temperance R. Rowell, Larry G. Riley, Ph.D.

5:00 p.m. **Concluding Address – Alice Peters Auditorium, Room 191**
Ecto and Endoparasitic Prevalence in Peri-domestic Medium Size Mammals in Stanislaus County, California
Paul R. Crosbie, Ph.D.

Proceed to Student Award Presentations and Social Hour

Judges for Undergraduate and Graduate Student Presentations and Poster Presentations:

Dr. Amanda Adams	California State University, Fresno
Dr. Loren Alving	University of California, San Francisco
Dr. Saeed Attar	California State University, Fresno
Dr. Sharon Benes	California State University, Fresno
Dr. Daniel Cady	California State University, Fresno
Dr. Alejandro Calderon-Urrea	California State University, Fresno
Dr. Karen Carey	California State University, Fresno
Dr. Kathleen Dyer	California State University, Fresno
Ms. Marie Fisk	California State University, Fresno
Dr. Tamas Forgacs	California State University, Fresno
Dr. Gil Harootunian	California State University, Fresno
Dr. Alam Hasson	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
Ms. Susan Hughes	University of California, San Francisco
Mr. Carl Johannson	Fresno City College
Dr. Ronna Mallios	University of California, San Francisco
Dr. Thomas McClanahan	California State University, Fresno
Dr. Paul K. Mills	University of California, San Francisco
Dr. Karl Oswald	California State University, Fresno
Dr. Siobhan O'Toole	Alliant International University, Fresno
Dr. Jim Prince	California State University, Fresno
Mr. Chuck Radke	California State University, Fresno
Mr. Rick Stewart	Fresno City College
Dr. Kent Yamaguchi	University of California, San Francisco
Dr. Lynnette Zelezny	California State University, Fresno

Moderators for Oral Presentations:

Mr. Doug Carey	California State University, Fresno
Dr. Dan Griffin	California State University, Fresno
Dr. Donna Hudson	University of California, San Francisco
Mr. Chuck Radke	California State University, Fresno

Presentations will be judged based on the following criteria and considerations:

- Merit, creativity, timeliness, and value to an audience of scholars not necessarily from the same discipline
- Authors are encouraged to present their work using terminology suitable for a multi-disciplinary audience
- Results of completed work, as well as work-in-progress, for which there is preliminary data

ORAL PRESENTATION ABSTRACTS

(IN ALPHABETICAL ORDER BY PRESENTING AUTHOR)

Benjamin Adams, Ming Xiao, Ph.D.
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California State University, Fresno
Department of Civil Engineering
Graduate Student

PIPING EROSION MECHANISMS OF ORGANIC SOILS AND BIOABATEMENT OF PIPING EROSION IN SAND

This research presents the findings of a preliminary research program aimed at investigating the mechanisms governing the progression of piping erosion in organic soils. The hypothesis that the presence of organic material within mineral soils results in a reduction in the severity of piping erosion progression is also investigated. Erosion behaviors of the soils are quantified in the laboratory using the hole erosion test (HET), and the research is split into five test phases. In phase one, the influence of grain size distribution is eliminated in order to develop a preliminary understanding of the role that organic matter plays in the erosion process. Results indicate that the presence of organic matter is likely to contribute to a reduction in piping erosion progression.

The second phase focuses on the unique particle shape exhibited by organic materials. Since the rough surface texture may influence the progression of piping erosion, both grain size distribution and individual particle shape are removed as variables in the erosion process. Results from the HET, along with microscopic examination of soil particle surfaces, indicate that particle shape does not likely play a major role in erosion reduction.

The third phase quantitatively reveals the positive correlation between increased organic matter content and reduction in piping erosion progression. Both particle shape and size distribution are controlled in order to focus exclusively on the effect of organic matter content.

The fourth phase investigates the possible sources of the observed erosion reduction by quantifying certain biologically derived substances. Certain soil-microbe byproducts have been shown to effectively bind individual particles into larger, more stable aggregates. Positive correlations indicate that these substances likely play a major role in reducing piping erosion progression.

The final phase indicates that the introduction of organic material into mineral soil decreases shear strength, increases consolidation settlement, and reduces permeability.

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Aafshari@mail.fresnostate.edu
Arya Afshari, Clint Hawkins, Sky King, Courtney Lemon, Mathew Robison, Donald Woods, Barbara Hoeling, Ph.D.
California State University, Frenso
Department of Physics
Graduate Student

ENTANGLED! THE QUANTUM BEHAVIOR OF LIGHT

As one probes physical systems on the smallest length scales (atomic size and smaller) one must take into account the quantum mechanical nature of matter and forces. The quantum behavior of matter and forces is often very non-intuitive from a classical view point. One of the most non-intuitive features of quantum mechanics is entanglement which is the connection between matter or force quanta even when they are separated by great distances. The fact that quantum systems exhibit entanglement was first pointed out by Einstein, Podolsky and Rosen in 1935. Models of our experiment, which became possible in 1981 due to technological advances, test and confirm the entangled nature of quantum mechanics. Refinements and extensions of entanglement experiments continue to present times.

In this project, we built an experimental set up to demonstrate the quantum phenomenon of entanglement using photons (photons are quanta of the electromagnetic force). The experiment consisted of sending a photon through a crystal which split the initial photon into two entangled photons. These split photons were then detected using a computer controlled photon detection system. The results where then analyzed to show that the split photons were indeed entangled in the manner described by quantum mechanics.

In addition to the research results from our experiment, which were used to confirm the results of previous quantum entanglement experiments, our experimental set up can be used to teach an advanced undergraduate lab on quantum entanglement. I will report on the goal and setup of the experiment, together with the results of verifying the entangled photons.

Vincent Aguirre, Lorin Lachs Ph.D.
vincepa@mail.fresnostate.edu
California State University, Fresno
Department of Psychology
Undergraduate Student

THE LEXICAL EFFECTS OF VISUAL SIMILARITY STRUCTURE ON AUDIOVISUAL SPOKEN WORD RECOGNITION

Two findings provide insight into the process of audiovisual spoken word recognition. First, the additional presentation of the visual spoken word has been found to increase successful word recognition above audio-only performance (Sumby & Pollack, 1953). Secondly, visual-only word recognition performance has been shown to decrease as the lexical equivalence class (LEC) size increases (Mattys, Bernstein, & Auer, 2002). A lexical equivalence class is the set of all words that are visually identical. In the present study we investigated how audiovisual spoken word recognition is affected by the LEC size. The test words were organized by number of syllables (monosyllabic or disyllabic) and by increasing LEC size. Those words that exist alone in their LEC were placed in the Unique-LEC group. Those words that exist in a LEC of 2-6 words were placed in the Medium-LEC, and those words that exist in a LEC of 10-60 words were placed in the Large-LEC group. Each participant was exposed to one session only of either all monosyllabic words or all disyllabic words, and randomly assigned to one LEC category.

Participants were exposed to each word 6 times in a trial, and the order of words was randomized within each trial. Presentation condition was blocked and the order of the blocks was randomized across participants. In addition to the manipulation of the presentation conditions, we also manipulated the signal-to-noise ratio: the volume of the auditory display of the words stayed constant with increasing levels of white noise presented simultaneously. Each word was presented at each noise level (3 levels) within each presentation condition (auditory-only and audiovisual). We hypothesized that with increasing LEC size, the benefit gained in word recognition from simultaneously-presented audio and visual displays would decrease.

The results are discussed in terms of the role of top-down processing in audiovisual speech perception.

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THE EFFECTS OF PROXIMITY, WRITTEN PROMPTS, AND PUBLIC POSTING ON RECYCLING AT A UNIVERSITY SETTING

An AB and multiple-baseline design were used to examine the effects of proximity, written prompts, and public posting to increase recycling at a center-based program for children with autism and an academic building at a university. Data were collected on the number of recyclable bottles, cans, and paper in the trash and recycling bins. During the treatment phases, the recycling bins were placed in a central location for both locations. A written prompt to recycle bottles, cans, and paper were placed above each appropriate recycling bin. A written prompt labeling "TRASH ONLY" was placed on each trash bin. Public postings of the number of recyclable bottles cans, and paper collected for each treatment phase were placed at both locations.

Results showed an increase in the number of recyclable materials in the recycling bins. The data also showed a decrease in the number of recyclable materials in the trash bins for both locations. Potential limitations and extraneous variables are discussed.

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THE HIJAB AND FEMINISM: WHAT DOES IT MEAN TO BE A MUSLIM-AMERICAN FEMINIST WOMAN?

The research in which this paper is based explores the meanings of what it means to be a Muslim-American feminist woman. In this paper, I ask how the intersections of race, class, gender, the nation-state, and Islam work in the United States post-September 11, 2001. And how do the intersections between feminism and Islam travel through the post-September 11 era in the U.S.? By asking such questions, I focus on the notion that Muslim women and feminism (read as American) do not necessarily have to be binary, oppositional, and mutually exclusive to each other.

In the fall of 2010, I conducted an in-depth semistructured confidential interview with a woman who self-identified as a "Muslim-American feminist." The goal of the study was to uncover how Muslim-American women think about themselves. Hence, my aim is to rupture the notion that "Muslim" and "feminist" identities can only exist as mutually exclusive, rigid identity categories. I view my respondent as a book of historical information. Both physically and orally, she represents a site of history. As she physically sits before me, she tells me her story and how she has experienced life through the body of a Muslim-American feminist woman.

My research raises the voice of Muslim-American women. I also hope to raise awareness that feminism does exist in Islam, and being a Muslim-American feminist is not a contradiction. Feminism and Islam are often juxtaposed as mutually exclusive binaries, however my research shows that feminism and Islam can coexist.

My research serves the purpose of closing the gap in scholarly literature about Muslim-American feminist women. Not only is Iman's narrative important to Muslim-American feminists, but her story resonates among immigrants, feminists, Muslims and women of color. I would argue that my work takes a trans feminist approach, and my research is valuable among many disciplines. Muslim-American women are marginalized and Muslim-American feminists are invisible, my work is very important to various types of research because these voices are silenced and misunderstood.

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THE WORKS OF DOÑA JOSEFA AMAR Y BORBÓN: FROM CONSERVATIVE TO RADICAL ENLIGHTENMENT SPAIN

Doña Josefa Amar y Borbón, a recognized Spanish enlightenment thinker, is best known for her arguments concerning the need for the education of women as part of the 18th century program of enlightenment. Her works have been studied to great effect because she led the way for foundations of government societies that included women. She was completely immersed in the conversation of education and role of women in the new "Enlightened" Europe. Nevertheless, modern scholarship has overlooked an important aspect of Borbón's opus: A transition in her ideological development. Borbón was neither an inherently conservative and traditional *philosophe*, nor from the beginning a radical feminist thinker.

Borbón transitions from "conservative" enlightenment figure, advocating for women's education and rights as beneficial to society, towards equal opportunity and acceptance in the public sphere of enlightened society. This transition is most clearly visible in her essays: *Discurso en Defensa del Talento de las Mugeres, y de su Aptitud para el Gobierno, y Otros Cargos en que se Emplean los Hombres* (Discourse in Defense of the Talent of Women, and of their Aptitude for Government and other Charges in which Men Employ Themselves) and *Discurso sobre la Educacion Fisica y Moral de las Mujeres* (Discourse on the Physical and Moral Education of Women). Through a close analysis of these works, this essay traces the intellectual radicalization of one of Spain's most important female thinkers, highlighting the need to evaluate modern scholarly considerations of Spain's *Ilustracion* as a conservative, watered-down version of the French Enlightenment.

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SYNTHESIS AND ANALYSIS OF RARE-EARTH GADOLINIUM NANOPARTICLES

Magnetic nanoparticles can have enhanced magnetization and increased density in a finite region compared to their bulk material. Possible applications include high-density magnetic storage, high-density recording media, contrast agents to improve medical magnetic resonance imaging, and magnetic refrigeration. Bulk gadolinium is a paramagnetic rare earth metal above 293K and ferromagnetic below. In our laboratory, we have synthesized sub-micron gadolinium particles using the inverse micelle technique. An Inverse micelle solution was created with the surfactant didodecyldimethylammonium bromide (DDAB) in toluene, a non-polar solvent, and water, a polar solvent, and gadolinium nanoparticles were reduced within via sodium borohydride. The nanoparticles were extracted using liquid-liquid extraction. SEM images and EDX spectroscopy confirm spherical gadolinium clusters less than one micrometer were produced. Due to the reaction between gadolinium and water, an unavoidable oxidation occurred.

A new synthesis procedure using different solvents, hexane and methanol, is in progress.

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PROMPTING TO IMPROVE ACADEMIC PERFORMANCE IN CHILDREN WITH AUTISM

Extensive research in within stimulus control and errorless learning has demonstrated these techniques to be the most effective teaching strategies for children with autism. Techniques that use errorless learning involve prompting the child to respond correctly using visual prompts, verbal prompts, and also hand over hand prompts and gradually fading the prompts over time.

The following study focused on using visual prompts to help children with autism learn and perform better and independently on academic tasks. A form of visual prompting, such as highlighting important aspects of a problem on a worksheet, was used to improve the child's overall academic performance. This form of visual prompting was unfamiliar to the children in this study.

Four of the six children from the Central California Autism Center reached the mastery criteria of 80% and above across three consecutive sessions while five of the six children who participated, showed decreases in the number of verbal prompts and duration.

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THE DISTRIBUTION, FORAGING BEHAVIOR, AND HABITAT USE OF SQUIRRELS IN AN URBAN ENVIRONMENT

The urban environment of the Fresno Clovis Metropolitan Area (FCMA) represents a complex ecosystem for vertebrates, an ideal ecological study area to establish a relationship between organisms and their environment under extreme anthropogenic modifications (Parker and Nilon 2008). This study will determine distribution patterns, abundance and foraging behaviors of mammals in an urban environment. This project will use transects and survey data to estimate both distribution and abundance of two squirrel species present in FCMA, native California ground squirrels (Otospermophilus beecheyi) and introduced fox squirrels (Sciurus niger).

A maximum of 80 points will be surveyed by estimating habitat variables to examine habitat use in terms of factors that govern food resource use and foraging behavior. This will allow identification of the vegetation characteristics of primary importance in explaining presence or absence of squirrels.

Two habitat types (residential and park) will be studied to assess S. niger foraging behavior as measured by Giving Up Density, or GUD (Brown 1988). At each site the microhabitat will be manipulated by using two trays to study the effects of predation. This will test the hypothesis that the tray located further from a source of refuge (for example trees) will have a higher perceived risk of predation. Preliminary data supports this hypothesis.

Western scrub jay (Aphelocoma californica) vocalizations were amplified via a tree-mounted speaker to test the hypothesis that the foraging behavior of S. niger would be modified under perceived eavesdropping. Sciurus niger are expected to cache less seeds during the playback experiment due to potential pilferage of cached seeds by A. californica.

The results of this research will contribute to what is known about squirrels in diverse urban environments, which could be applicable to other metropolitan areas. Very few studies of kleptoparasitism have been conducted with squirrels as the test organism (Schmidt 2008).

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DEVELOPMENT OF MIRRORS FOR THE CLAS12 HIGH THRESHOLD CERENKOV COUNTER

The Thomas Jefferson National Accelerator Facility (JLab) has begun an ambitious program to double its beam energy. One of the detectors at JLab is being upgraded to accommodate this higher energy. The existing detector will be unable to distinguish electrons from other particles at the higher beam energy. This will necessitate the construction of a new, improved detector. An important part of the new detector design is the light collection system, which utilizes high-quality, extremely lightweight mirrors to reflect the energy of the charged particles to a set of photomultiplier tubes located at the back of the detector. To ensure uniformity in performance, it is important to simplify as much as possible the construction of these mirrors.

My work at JLab was to design and manufacture these mirrors while trying to keep the procedure simple and economical. The results were successful. Various mirror samples that I made met all the design specifications. The method that I found for constructing the new mirrors is currently being used in the detector. This talk will focus on the construction techniques used to make these new mirrors and the improved detector characteristics that resulted from this new mirror design.

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YOUTH SPOKEN WORD: EXPRESSION, ACTIVISM, AND THE CYCLE OF POETRY

The growing popularity of Spoken Word, a unique form of performance poetry that inspires youth, raises many questions about the powerful effects of such an art form. Originally, these poets have been marginalized from the academic scene because they are vastly people of color and working class. Hence, this research concentrates on youth, in the inner cities performing Spoken Word poetry. Youth in Spoken Word have built a movement through their freedom of expression. With this expression, poets address controversial and extremely personal issues in their writing. This looks in-depth at youth poets in the Bay Area as writers, activists, and citizens of their communities. Through interviewing nine poets from Youth Speaks, a Spoken Word youth empowerment program, it investigates the true meaning of poetry in their lives and the activism that has merged from it.

The data shows that Spoken Word is a catalyst in youth lives to keep them away from violence by giving them a sense of belonging and encouraging them to continue their education; as a result, it shows an urgency for more Spoken Word youth empowerment programs and in education curriculums. Therefore, there needs to be Spoken Word programs, so that they channel their energy into a positive outlet and find power in their voice.

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THE ABCD CONUNDRUM: WOMEN, MARRIAGE, AND ALTERNATIVE FORMATIONS OF POWER

On an afternoon in September, I find myself with Padmini - a respondent involved in my field work. She reveals to me: "It was something very prominent in my mind [to marry] someone who can understand the language [my parents] speak…[But] none of my friends know the story of how I got married…I didn't want them to know after three dates with someone that my parents chose for me, I was getting married…"

Padmini talks to me about her "arranged marriage." She describes why it was important to her to have her parents' involvement in her partnership selection, while simultaneously voicing her embarrassment, especially as a South Asian-American woman – a gendered body marked by color and culture. Padmini insightfully problematizes the East/West divide or the binary and mutually exclusive categorization between American and South Asian.

In this paper, I explore the national debates on U.S. immigration and theories of assimilation and hybridity. Here, I focus on the role marriage plays in lives of "second-generation" South Asian-American women. I do this by presenting partial data from a twelve-month-long feminist ethnographic study. In 2004, I conducted in-depth semi-structured confidential day-long interviews with a cross-national sample of twenty-five second-generation South Asian-American women. I explored how informants respond to their families' expectations of marriage along with the women's own expectations of marriage.

What is being written into both the academic and popular narratives is a story of cultural displacement which evades the specificity of gender and depends on stereotypic propositions about America and South Asia. This lens lends to a view that South Asian-American women are part of a strict, inflexible, patriarchal, South Asian family, and the "westernized" second-generation have no choice but to rebel against their own culture. What I discover is that my research participants collapse the one-dimensional multicultural model by producing multiple and contradictory identities simultaneously.

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WERTHER'S NASH EQUILIBRIUM: COMPLICATING "MADNESS" IN GOETHE'S THE SORROWS OF YOUNG WERTHER

The instinct of Goethe's critics has mainly been to explicate Werther's suicide as the tragic, albeit predictable, termination of a set of interacting psychological or psychiatric issues. While these analyses are often insightful, they frequently furnish more diagnosis than description of Werther's predicament. In my analysis, I aim to complicate such diagnoses of Werther's "madness." To this end, I describe the progression of thought that terminates in Werther's suicide by reading the events of the novel in context of both the suicidal logic Werther constructs in his letters and his accounts of himself and his various social interactions.

In doing so, I discover the presence of a game dynamic, more specifically a Nash equilibrium, in which culture firmly preserves its semantic and institutional norms while Werther attempts unsuccessfully to personalize language and ideas held by culture, altering accepted relationships between signifier and signified to fit his own perceptions. Indeed, I contend, Werther's sorrows originate from a certain inability to communicate his feelings or impressions, his Self, to others in any coherent manner.

Throughout much of the novel, Werther maintains a lexically antagonistic attitude toward culture, ostensibly because he is holding out for a tolerance of the subjective that culture is unwilling to offer. However, I infer, recognizing that some compromise with the ordered world is necessary to his survival in it, but realizing that any compromise would mean sacrifice or abridgment of his creative, imaginative Self, Werther finally opts to stop playing an unwinnable game by physically and mentally removing himself from it via an act of "self-extinguishment." Ultimately, I conclude, suicide holds the most incentive for Werther, because it offers him the prospect of not only permanent, undivided engagement with his ideal, but a sense of autonomy and means of symbolically asserting his individuality.

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FDI IN ACTUATORS

Current industrial systems are highly automated in that they require two important attributes namely; (i) stable control loops, and (ii) reliability. Because of complexity, stability analysis has been the major research area. Reliability related research activities are in progress and continuously improving because of the advancements in new theories, tools and techniques, and methods. Reliability studies in large systems such as space and air craft engines, high-speed rail, and similar have motivated the researcher and developers to apply to smaller systems because of the reasons mentioned above. In fact, recent developments extend to field-level devices such as sensors and actuators. Further, recent developments in soft-computing methods and tools and their implementation scenarios have led to establishing a stronger foundation as regards to the development of smarter and more reliable devices. It is now possible to embed processing power at the field-level because of availability of programmable enabling technology.

In considering the above advancements, this research is directed to study a scheme for Fault Detection and Isolation (FDI) of actuating systems used for automated applications. Actuators are a class of technological systems that always entail greater reliability. This work presents a study on various FDI approaches. We have considered two types of FDI approaches. They are model-based and spectral analysis. In particular, we have reviewed the model-based approach and then proposed the spectral analysis based technique. Some comparisons in regard to their application areas are also presented. Spectral analysis based FDI algorithm is developed with an exemplar actuator. Based on a simulation study, a proprietary pneumatic valve actuator, commonly used in pressure regulation applications, is interfaced with embedded platform and the developed FDI algorithm is tested and validated. The methodology and supporting tools that we used for this verification are MATLAB, DSP technology, and GUI-based programming tools.

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ON MULTIPLIER SEQUENCES OF A SPECIAL FORM FOR FINITE FIELDS

In 1977, Craven and Csordas posed the question that if one begins with a multiplier sequence for a field, F, then under what conditions is a sequence of a specific form again a multiplier sequence for F. We present some results to this question and methods used in the process.

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COACHING EDUCATION IN ACTION: OBSERVATIONS FROM PILOT STUDIES IN YOUTH SPORT SETTINGS

The purpose of this presentation will be to share lessons from designing and implementing ongoing learning communities in youth sport settings. Nearly 60 million youth participate in organized sport in the United States each year. Despite playing a key role in the education of America's youth, sport coaches typically receive little or no formal training. When they do, the content is generally not applicable to a specific coaches' coaching context, or is information that the coach has already received or learned. In addition, there is little evidence to suggest participation in these programs has any significant or lasting impact on coaching behaviors or athlete learning outcomes (Trudel, Gilbert, & Werthner, 2010). As a result, coaches typically view learning from experience as the most important source for ongoing development. A learning community has been frequently seen in education, but to our knowledge has rarely been considered for coach development. In the current presentation we will share results of three learning community interventions with youth sport coaches: (a) high school basketball coaches, (b) high school water polo coaches, and (c) a year-long project with an entire high school athletics program designed to create a culture of continuous improvement. The presentation will be organized into three sections: (a) overview of the integrative definition of coaching effectiveness and the learning community approach, (b) protocols utilized and lessons learned, and (c) tools for measuring the impact of learning community initiatives.

Results to be discussed include observations from a number of learning community meetings. Specifically, participants completed the Self-Reflection and Insight scale before and after participation in the learning community intervention, and researchers observed an increase in self-reflection. Researchers will also present effective and challenging aspects of implementing a learning community for ongoing professional development.

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IT SUITS HIM: PERPETUATING EVO MORALES' MEDIA IMAGE IN BLOGS

This is a qualitative study of image construction in blogs. The data are derived from a variety of blogs concerned with Bolivian president Evo Morales' self presentation through dress in the media. A total of ten blogs were used to explore the relationship between the media and blogs.

With the backdrop of scholarly works, I found that there is an undeniable bridge between the image presented by the media and its perpetuation in blogs. This phenomenon gives rise not only to the specific figure at hand (Evo Morales), but extends to the inevitable image construction of other political figures who share the presidential limelight. I close by addressing the non verbal cues associated in political fashion choices and the potential incentives involved in *branding an image* (Guzman & Sierra 2009), and its eventual perpetuation in blogs that are not necessarily political.

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BASE-X: BRIDGING THE COGNITIVE GAP BETWEEN ARITHMETIC AND ALGEBRA

Based on research in psychology suggesting that transfer of knowledge is facilitated when familiar and unfamiliar concepts are structurally isomorphic, a teaching intervention study conducted with college remedial algebra and liberal studies students demonstrates the effective bridging of arithmetic to algebra through the linear algebra concept of 'basis.' After a unit on base-5, culminating in a general conceptual understanding of number bases, students learn to work in 'base-x,' applying their ordinary notions of arithmetic to compute algebraic arithmetic 'basis-free,' without variables. After pretests, three groups of students received instruction in number bases and base-x. Students exposed to base-x performed significantly better at computing algebraic arithmetic than a non-treatment control group from a similar population; and moreover, the base-x students demonstrated significant retention of knowledge as compared to the control group, upon taking a post-post test 1 month later.

The conclusion reached is that 'mediated isomorphism' understanding, which is the teaching of the isomorphic relationships between similar problem structures, is more effective for developing elementary algebraic thinking than 'surface-level isomorphism' understanding associated with procedural thought.

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DESIGN AND DEVELOPMENT OF AN INTERFACE PLATFORM FOR USE IN HIGH ENERGY PHYSICS EXPERIMENTS

One of the primary goals of High Energy Physics (HEP) is to understand the laws of nature by exploring the fundamental constituents of matter. Particle accelerators such as the Large Hadron Collider or LHC coupled with detectors like ATLAS (A Toroidal Lhc ApparatuS), the world's largest particle detector ever built, enable HEP physicists to examine and predict the behavior of particles. Unfortunately, this comes at a high price. In order to offset the enormous cost of the detector, the lifetime of ATLAS will be extended through periodic upgrades designed to modernize the detector technologies and improve its efficiency. The High Speed Input/Output (HSIO) Development Board is a proposal designed to facilitate the research process of developing ATLAS detector uprades by serving as a standard interface between upgrade experiments and data storage facilities.

The upgrades to ATLAS will begin in approximately seven years. With the deadline fast approaching, it is imperative that the process of research and development, design and construction, and implementation are completed on time. By taking advantage of industry standards in telecommunications and recent advances in HEP, this proposal for a uniform interface would shorten the time required for research and development. This interface would accept experimental data and provide first level data processing. A broad range of input and output connectors would enable the proposed interface to transition smoothly into most upgrade experiments.

A preliminary batch of interface boards was visually inspected for proper manufacturing and evaluated for connectivity across multiple computer platforms. Individual connectors of various types were subjected to simple data transmissions which tested functionality and processing capabilities both to and from the platforms. Initial evaluation determined that connectivity of individual interface components performed remarkably; however cross-platform communications was non-existent. It was determined that a better understanding of component integration was required before testing of the processing capabilities could be assessed.

The HSIO board proposal offers a solution to upgrade developers on the ATLAS detector by combining various input/output connections which serve as an interface between experiment and data storage. By providing a standard interface with processing capabilities, detector physicists are free to focus more efforts on the physics behind individual experiments while faced with an impending deadline. The development of the HSIO board, if successful, may prove not only a benefit to the ATLAS community, but to future HEP experiments as well.

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THE SIGHING, BLEEDING, FEASTING SOUL: SPEECH SCROLLS IN MESOAMERICA

Pre-Columbian Mesoamerican codices provide invaluable insight and information on the cultures and societies of the Nahuatl and Mixtec speaking people before Spanish contact in the 16th century. These surviving codices cover genealogies, histories, divination, and ritual practices integral to the daily lives, collective history, and motivations of the Nahuatl and Mixtec people. The information in the codices is encoded in a combination of iconographic and phonetic expression which goes beyond the alphabet and literacy that is historically common to European traditions and current practices. This difference reveals the special role the codex played in Mesoamerican culture but it also provides a stumbling block for current research as much of the meaning behind the iconography and symbolic language has been lost. The objective of this study is to create a survey of how iconographic elements known as Speech Scrolls function in Pre-Columbian Nahuatl and Mixtec codices and what their use reveals about Nahuatl and Mixtec culture and society.

Speech Scrolls are a common element of codices and used in a variety of contexts. It is their frequent usage and incorporation into many different genres that calls into question the lack of attention they have received in the research of iconography. The use of Speech Scrolls is not ubiquitous because of its pedestrian function as a marker of speech in larger more obviously significant motifs but because they are integral to the underlying cultural and cosmic foundations of these motifs. Speech Scrolls connect the images and figures depicted to larger cosmic concerns of the soul, earthly and heavenly structure, authority, death, and sacrifice. Through examination of the Speech Scrolls in several codices (such as the Borgia Group, the Bodley Codex, and the Codex Laud) these connections between speech/breath and soul/cosmic and social order are brought to light.

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THE STRESS RESPONSE: A LOOK AT THE DIFFERENCE BETWEEN MEXICAN-AMERICANS AND CAUCASIANS

Researchers have looked extensively into the effects of stressors through the the endocrine system, with the examination of the hypothalamic pituitary adrenocortical system and the release of salivary cortisol (Cort) and the sympathetic adrenomedullary system with the release of salivary alpha-amylase (sAA). High levels of Cort have been linked to cardiovascular disease, diabetes and immune suppression. High levels of sAA have also been linked to similar health risks, and behavioral issues, such as depression, attachment, and adjustment issues Though many studies have examined these relationships, the samples used have been predominately Caucasians. It has been demonstrated, through the comparison of African Americans and Caucasians that a difference does exist between ethnicities, with African Americans demonstrating higher reactivity to stressors.

In this study, we presented Mexican-Americans (n=31) and Caucasian undergraduate students (n=29) with a standard stress induction task, the cold pressor test (CPT). Salivary samples were collected at five different time intervals to measure their stress response. We expected to have our Mexican-American participants demonstrate a greater stress response than the Caucasian participants, based on current literature.

The present study shows that there is a significant difference between the ethnicities examined and Cort, $F(1, 58)=12.27$, $p<.05$, partial ç2=.18, with Mexican Americans showing higher levels of Cort. Both groups demonstrated a drop in Cort following the CPT, followed by a return to baseline, contrary to the traditional increase following the task. No such difference was demonstrated with sAA and ethnicity, $F(1,58)=2.74$, $p=.10$, ç2=.05, but a trend was noticed with Caucasians showing higher overall sAA levels than Mexican-Americans. Both ethnicities demonstrated an increase in sAA levels following the CPT, with sAA levels that continued to rise, rather than return to baseline, also contrary to current literature.

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SPECTROSCOPIC STUDIES OF A HIGH VALENT MANGANESE COMPLEX: $[MN^{IV}(ME_3TACN)(OME)_3]^+$

Manganese(IV) complexes are involved in a wide array of biological and industrial reactions such as catalysts in bleaching reactions as well as oxygen evolution in photosynthesis by photosystem II. These centers have been traditionally studied by electron paramagnetic resonance (EPR) spectroscopy; however, their small zero-field splittings complicate analysis of conventional X-band spectra. Accordingly, high-field, high-frequency EPR (HF-EPR) spectroscopy is required to obtain accurate ground-state parameters. The goal of this project was to determine the usefulness of magnetic circular dichroism (MCD) spectroscopy as an alternative method for studying high valent manganese complexes. A manganese(IV) complex with a well known structure, $[Mn^{IV}(Me_3TACN)(OMe)_3]^+$ was synthesized and purified. The data obtained from the MCD analysis as well as quantum mechanical computations were compared to the experimentally derived data for qualitative structural relationships.

This project evaluates the potential of MCD spectroscopy as an alternative for HF-EPR spectroscopy when the molecule of interest may be EPR silent or only able to be obtained in small amounts, as MCD requires only minute amounts of the complex to be studied and can be used to examine any paramagnetic system.

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A COMMUNITY PERSPECTIVE ON OBESITY

The San Joaquin Valley is home to a diverse population that provides equally diverse research opportunities. Southeast Fresno is an area of high interest in the study of obesity, and this area presents unique characteristics that will provide insights into how city planning directly impacts the health of communities. Currently, Communities of Excellence in Nutrition, Physical Activity, and Obesity Prevention (CX3), is a tool that assesses the overall health of communities using markers like availability and access to parks, grocery stores, school lunch options, etc. The Central California Regional Obesity Prevention Program (CCROPP), is dedicated to advocating for healthier communities by bringing community members together with local government and health providers. CCROPP has worked with the Fresno County Department of Health to use the CX3 tool to assess the health of Fresno-area neighborhoods. We propose introducing an ethnographic component to research already being generated by CCROPP and the County that will provide insight into the lived human experience from the community point of view. In spring, 2011, we will use observation, interviews and some participation in daily activities with residents of CX3 neighborhoods to explore their experience of their neighborhoods as they seek healthier lifestyles.

This paper will present some findings about the health-related experiences of people in the target community. Depending on sample size, the results can be generalizable for a specific segment of the population. By incorporating an ethnographic approach this study will be able to complete and improve the communities strive for healthier and happier members.

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ECTO AND ENDOPARASITIC PREVALENCE IN PERI-DOMESTIC MEDIUM SIZE MAMMALS IN STANISLAUS COUNTY, CALIFORNIA

The objectives of this study were to determine the gastro-intestinal and ectoparasite prevalence and intensity of infection in four species of medium sized peri-domestic mammals captured in immediate proximity (3.05 m) to structures. These mammals (n=37) were collected throughout urban Stanislaus County, California from December 2006 to August 2007, in response to resident complaints regarding the mammals activities

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Each animal was examined externally and ectoparasites (fleas, lice and ticks) removed and placed in 95% ethanol for later identification and quantification. Subsequently a complete abdominal and thoracic necropsy was performed, and all endoparasitic helminths recovered also preserved for later characterization. Thirteen striped skunks (Mephitis mephitis), 14 Virginia opossums (Didelphis virginiana), 9 gray foxes (Urocyon cinereoargenteus) and 1 red fox (Vulpes vulpes) were evaluated. In the skunks, prevalence of Physaloptera maxillaris was 92 % with a mean intensity of 31.2 nematodes/skunk, and prevalence of Baylisascaris columnaris was 62% with a mean intensity of 8.4 nematodes/skunk . Xenopsylla cheopis (vector of bubonic plague) was the most common flea, present in 85 % of striped skunks with a mean intensity of 12.6/skunk.

Turgida turgida nematodes occurred in 9/14 (64%) opossums with a mean intensity of 16.7 worms/opossum, and Cruzia americana neamtodes occurred in 86 % of opossums with a mean intensity of 110.5 worms/opossum. Ctenocephalides felis was the most common (83%) and intense flea (22.6 fleas/opossum), although Xenopsylla cheopis was present on 50% of the animals, with a mean intensity of 3.8 fleas/opossum.

Toxocara canis nematodes were present in 2 gray foxes (mean intensity = 6) and in the red fox (intensity = 2). The flea species found on opossums were also present on gray fox. Ctenocephalides felis was the most common, occurring on 8/9 (89%) of gray fox, with a mean intensity of 6.5 per individual. Xenopsylla cheopis occurred on 56% (8.8 fleas/gray fox). One female D. variabilis tick was recovered from a juvenile female gray fox. On the single red fox sampled, X. cheopis (31 fleas) and C. felis (3 fleas) were present.
No previous study has provided parasite data on these mammals in central California, and several of the parasites (e.g. T. canis and X. cheopis) represent zoonotic risks

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TEXTBOOK STUDY

The textbook study was a yearlong research project that utilized anthropological research methods such as documenting observations, impromptu interviews, photographic journals and focus groups. I worked with a team of 6 students and two faculty mentor's from Fresno State's Anthropology department. The goal of the research conducted was to understand how students at Fresno State use their textbooks in relation to other studying habits.

The research looked at different types of textbooks, the practice of making or highlighting in books, other resources that students use to study and the frequency at which they do so, as well the times and places that they study – but it wasn't enough just to understand what students were doing, in regards to each of these specific entities of research we were focused on understanding why students were doing these things. Generally speaking, we found that the results of the study where not what we predicted. One of these surprises, for example, was that students expect and rely upon external resources more frequently than their textbooks. Another was a general favor towards physical textbooks over digital.

At the conclusion of the textbook study we were able to assemble this information and make recommendations to the University about how to provide better resources to its students, including but not limited to recommendations regarding the University's transition into alternative textbook options like digital textbooks, EBooks, or open source textbooks. We also detailed our methods and our findings, as well as our recommendations in a report to the University.

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ELITE COACHING EFFECTIVENESS IN ACTION: A MID-SEASON REVIEW

The purpose of the present study was to capture coaching effectiveness in action with a successful head coach of a women's Division 1 collegiate basketball team. Although there are numerous studies on collegiate sport coaches, and several on basketball coaches in particular (e.g., Becker & Wrisberg, 2008; Bloom, Crumpton, & Anderson, 1999; Tharp & Gallimore, 1976), to our knowledge none of have systematically examined a successful coach's behaviors and decisions over the course of an entire season. Using a grounded theory case study approach, interviews were conducted with the coaching staff (n=4), and select practices and games were videotaped while the head coach wore a wireless microphone. The current presentation reports on conclusions obtained after 16 hours of direct observations and interviews (n = 13 interviews and 11 videotaped events). All interviews were transcribed concurrently with data collection and bi-weekly research meetings were held to discuss emerging hypotheses about coaching effectiveness. Game and practice videotapes were also reviewed concurrently with data collection, and will be coded with a systematic observation instrument after the season. At the midpoint of the season our observations indicate that the coach adopts a 'coach-centered' approach in practices and games. However, interviews reveal more of an 'athlete-centered' coaching philosophy. These 'athlete-centered' values often transcend sport and are intended to prepare the student-athletes for life after basketball.

The results support, with detailed evidence from the coaching process in action, the integrated definition of coaching effectiveness (Côté& Gilbert, 2009). The results also highlight the constant tension is inherent in elite sport coaching, where a coach's knowledge of the athletes and the immediate context directly influence the decision-making process, often requiring a coach to assume different leadership styles for different situations. This finding refutes the notion of a single effective leadership style for elite sport coaching.

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UNCOVERING THE ESSENCE OF MUSIC IN EXERCISE EXPERIENCES

Music is a prevalent part of society and is increasingly recognized as a major component of exercise and sports (Karageorghis, 1999). When used in unison with exercise, music has been shown to have a positive impact on athletic, exercise, and physical performance (Karageorghis, 1999). The potential benefits that music has on elite and collegiate athletes have been explored (Barwood, Weston, Thelwell, & Page, 2009). However, the research fails to thoroughly investigate how music influences non-athletes during exercise. Additionally, the lived experiences of participants, as examined through phenomenological methodology (Creswell, 1998), have been given very little attention in the field of sport psychology (Sorenson, Czech, Klein, & Lachowetz, 2008). Therefore, the purpose of the present study was to investigate, through phenomenological methodology (Creswell, 1998), how music influenced the lived experiences of college students during exercise. Eight non-athlete collegiate students, aged 18-24 years old, participated as co-researchers in this study. Co-researchers exercised at least three times per week, listened to music while exercising, and wrote about each of their exercise experiences with music in a reflective journal. Open-ended interviews were conducted with each co-researcher to uncover how music influenced their exercise experiences. Interviews were audio recorded, transcribed verbatim, and sent to each co-researcher for member checking (CÃ´tÃ©, Salmela, Baria, & Russell, 1993).

Content analysis (Miles & Huberman, 1994) resulted in the creation of five main categories that outlined the co-researchers' lived experiences of listening to music during exercise: (1) Increased Motivation, (2) Energy Boosting, (3) Controlling Mood, (4) Focus Control, and (5) Body Cues. Quotes from the co-researchers will be explored to provide an illustrative understanding of the essence of music in exercise experiences. The implications of the five themes will be presented, along with recommendations for future researchers investigating the importance of music in exercise.

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PROVIDING AFFORDABLE WASTEWATER TREATMENT WITH ENVIRONMENTAL BENEFITS TO SMALL, RURAL DISADVANTAGED COMMUNITIES

Economically disadvantage rural communities in the San Joaquin Valley typically utilize septic tanks or small wastewater treatment systems for disposal of human wastes. Unmaintained septic tanks and small wastewater treatment systems often suffer from lack of maintenance and, most importantly, significantly contribute to the widespread nitrate contamination of groundwater. Furthermore, effluent from these facilities is often disposed of directly into the environment with little benefit to either the community or the environment.

The broader scope of the proposed work seeks to provide highly efficient and affordable advanced wastewater treatment facilities to economically disadvantaged rural communities and utilize the effluent from these units for beneficial purposes. The proposed strategy for accomplishing this goal is to combine centrally-managed remote monitoring and control capability with highly efficient advanced treatment units serving multiple locations. Overall long-term costs would be significantly reduced relative to operating these treatment facilities independently. Other benefits include eliminating multiple sources of groundwater contamination and the simultaneous creation of a reliable supply of irrigation water (i.e., reclaimed/recycled wastewater) that would reduce the existing dependence on, and use of, high quality fresh water supplies, which are increasingly becoming scarce in the Central Valley.

The innovative Nepsus treatment system has been demonstrated to have unusually high energy efficiency combined with an ability to produce excellent quality denitrified effluent that meets California Title 22 effluent standards that can be used for irrigation of agricultural crops or to be used for groundwater recharge. The Nepsus system is an excellent candidate for the treatment component of the proposed strategy and, when combined with cutting-edge smart water system communication and control technology, represents a winning strategy for addressing multiple economic and environmental challenges in California's rural Central Valley.

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GROWTH OF CHLOROPICRIN-DEGRADING MICROBES

Chloropicrin is an alternative to the use of methyl bromide, a widely used pesticide in commercial agriculture that has been banned because it depletes the ozone. Five bacteria have been isolated as being able to grow on chloropicrin as a sole source of carbon and energy. The degradation of chloropicrin is slow, would the addition of a second carbon source enhance chloropicrin degradation?

The five bacterial strains that degrade chloropicrin were tested. Chloropicrin degraders were grown, in duplicate, in chemically defined media with chloropicrin (100 ppm) as the sole carbon source or with chloropicrin supplemented with casein amino acids. Culture was removed for testing each day for one week. Growth was measured by optical density and pesticide concentration was determined by gas chromatography (Shimadzu GC17-A).

Microbes enhance the degradation of chloropicrin over abiotic degradation. Gas chromatography experiments show chloropicrin degradation in the five strains of bacteria. Degradation occurs both with and without the addition of casein amino acids; however, the addition of casein amino acids increases the rate of degradation. Growth curves for the organisms show very little growth on chloropicrin as a sole carbon and energy source, though colonies appear on plates at seven to nine days after streaking. The addition of casein amino acids to the growth media allows for increased growth. The addition of a second carbon source allows for an increased rate of pesticide degradation, probably due to increased cell numbers.

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ENVIRONMENTAL EFFECTS ON NATIVE AND NON-NATIVE COPEPOD POPULATIONS IN SAN FRANCISCO BAY

The distribution patterns of planktonic organisms are important to study due to their potential influences on food web dynamics as predator and prey contributors. Copepods are among the most numerous aquatic microorganisms and provide a major source of energy for larger species such as fish and jellyfish in this role, copepods are critical energy flow between trophic levels. Introduced or non-indigenous species can potentially present additional competitive pressure to native species over resources and predation, which could translate into altered community assemblages. This risk to natives is why a predictive model to assess and anticipate invasive impacts is important to develop.

Plankton samples were taken from the San Francisco Bay system at fixed locations at monthly intervals using a 150 micron mesh net by the California Department of Fish and Game. Zooplankton tows were collected, processed and identified from 1998 to 2010 with ambient environmental conditions recorded. Samples were taken from the benthic to surface level. Organisms were identified down to the species level and their relative abundances determined by the catch-per-unit-effort.

Monthly average populations based on catch-per-unit-effort and broken down by native and non-native classifications showed a correlation with dissolved oxygen, temperature, and salinity variables. Native species showed a higher Pearson's correlation coefficient in dissolved oxygen ($r=0.416$) while non-native species had significant Pearson's correlation coefficients for salinity ($r=0.413$) and temperature ($r=0.264$). Stepwise regression analysis results reinforced these variables as being significant influences on the populations.

The population differences are indicative of environmental selection on community assemblages. Temperature and salinity had stronger correlations with non-native species than with native species and this trend can be used in conjunction with life history, historical populations, and environmental conditions to create a model of zooplankton community assemblages. The model can then be used towards predicting potential trophic ramifications from non-native species to the ecosystem.

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SEISMIC PERFORMANCES OF SLURRY WALLS

Of the California¡¦s 13,700-mile levees, some are more than 100 years old and were built with inadequate materials and poor techniques in the late 1800s. Frequent floods, land subsidence, and earthquakes have made these levees highly vulnerable to erosions and potential seismic activity. The Sacramento-San Joaquin Delta and its levees are at particularly high risk because of their proximity to large seismic zones and tendency for erosion-related failures. Slurry cutoff walls are commonly used to provide barriers to the lateral groundwater flow. The slurries used in the practice include cement-bentonite (CB) slurry, soil-cement-bentonite (SCB) slurry. Although the slurry cutoff walls that have been used in the U.S. for the past half a century prove to be economical and effective, their during- and post-earthquake performances are largely unknown „o earthquakes could crack the hardened SCB walls, induce large deformation, and reduce the shear strength of the slurry walls.

This research presentation reports the recent laboratory testing of the seismic responses of CB and SCB slurry walls on a 1-D shake table. The goals are to record the seismic behaviors (stress, deformation, acceleration) of the slurry walls during simulated earthquakes and to quantify the post-earthquake characteristics (cracks, void ratio, density, permeability, shear strength) of the slurry walls. The shake table is used to replicate ground motions that may be observed in actual earthquakes. The dimensions of the shaking table are 8ft „e 7ft, and the load capacity is 20.0 tons (177.9 kN). The table is driven by a 100 gallons per minute (gpm) pump and an actuator that provides 55 kips of hydraulic fluid driving force through a 10 inch displacement stroke.

The experimental results reveal the during- and post-earthquake performances of the slurry walls, so that adequate remediation measures can be taken accordingly.

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LOOKING AT HOW AFFORDANCES CHANGE VIEWPOINT

What influences which perspective a person takes when describing their surroundings? Does one's perspective shift given certain environmental features or social information? Allocentric perspectives, viewpoints that are not your own, are more frequent in spatial descriptions when a person is physically present (Tversky & Hard, 2009). People tend to feel "close" to friends and "distant" from strangers in both a metaphoric and physical sense (Matthews & Matlock, 2010). This work examines affordances that determine which perspective people use to describe the scenes. Of special interest is the relationship between viewpoint and social distance.

In the first experiment participants described where a variety of objects were in relation to other objects. These experiments controlled for a few objects in the visual scene to determine if those objects would provide affordances for the viewer that would be consistent with a visual scene where a person was present. If these objects (robot, chairs) as well as an empty scene provide similar affordances to that of a person we expected these objects would induce the use of an allocentric perspective. In a second set of experiments participants imagined attending a meeting with two other students: Mary and John. John's friendship with the participant was varied across conditions. Participants then viewed a scene of a table and chairs where each member's location was labeled, they then described where Mary was sitting. Egocentric frames of reference, the perspective of the viewer of the photograph, were more common when participants were familiar/friends with John and less common when participants and John were unfamiliar with one another.

Many factors influence an individual's perspective, and these results suggest that information about affordances and social relationships can also influence perspective-taking.

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VERBAL MORPHOPHONOLOGY IN CHUKCHANSI YOKUTS

Objectives: Previous linguistic work on the Chukchansi dialect of the Yokuts language family consists of two descriptive studies: Newman (1944) and Collord (1968). These studies focus much of their attention on the language's complicated verb system. The linguistic study of this system uses models to predict these sound forms, based on the word structure and sound structure of Chukchansi's verbs. My study seeks to replace the now-obsolete models of the Chukchansi verb system put forth by Newman and Collord with a currently acceptable model that has both greater elegance and explanatory power. Recent analyses have been done on the verb system of the related Yokuts dialect of Yawelmani, such as Zoll (1993) and Russell (1999), but to date no such analysis exists for Chukchansi. My study intends to fill this gap by providing an in-depth analysis of one particularly salient facet of Chukchansi: the size and shape of verb roots, the bases or primitive parts of the verb.

Methods: I collected the data for this study in a field methods class at Fresno State from two native speakers of Chukchansi. These speakers were asked how to loosely translate an English sentence into Chukchansi to elicit the desired verb forms. After collecting these verbs, I organized them by sound shape and suffix type into a table. Upon examining these verb forms, questions arose about the underlying structure of the verb roots, or how they can be described before they attach to suffixes and undergo processes to create their surface form, the actual spoken verb. This led me to an exploration of how well the surface forms can be accounted for by positing more of the sound structure in an underlying, abstract form than in the grammar itself, as opposed to some other current analyses.

Results: I found that when more of the sound structure of verbal roots is posited to be present underlyingly (i.e., in the mental lexicon), the actual spoken verbs can be derived by a simple grammar with lots of empirical motivation. General constraints on what kinds of stress patterns are desirable in Chukchansi account for both the placement of extra supportive vowels and the basic sound shapes of the Chukchansi verb root. Moreover, this analysis makes it easier to explain why certain suffixes change the sound shape of the verb root than in previous analyses of the related Yawelmani dialect.

Conclusions: I have found that it is possible to model the sound shapes and patterns of the verb system in Chukchansi in a straightforward manner. This model uses ideas that are widely accepted in linguistics as opposed to more nebulous or controversial ones that have been used previously on similar types of data. This model also links two facets of Chukchansi verbs' sound structure that were not previously known to be related. Thus this model is simultaneously elegant and broadly explanatory, and it shines new light on how the Chukchansi language works.

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THE OXYGENATION OF BIS(O-ETHYL-L-CYSTEINATO)NICKEL(II)

Sulfur-rich zinc sites are common motifs used in biological systems: the most notable are the zinc binding sites of zinc fingers, which play vital roles in controlling cellular functions such as transcription, translation, DNA repair, and apoptosis. However, replacement of Zn with Ni can cause serious health problems. Model compounds are used to better understand the mechanism of exchange and the changes that the displacement has on the structure and the chemical reactivity.

Zinc centers in proteins typically show no susceptibility to reactivity with oxygen. However, replacement of Zn with Ni increases the chances of oxidative damage which results in toxicity. Bis(O-ethyl-L-cysteinato)nickel(II), Ni(cysE)2, is used to model O2 reactivity of proteins in which Zn has been replaced with Ni. Reactions of Ni(cysE)2 with O2 result in both oxygenation of the sulfurs as well as oxidation of the thiolate sulfurs to form disulfide. If initial assignments of IR bands are correct, this is the first example of a NiN2S2 complex that is capable of forming both metallosulfones and metallosulfoxides using 3O2. Other studies require higher energy 1O2. The separation and characterization of the products upon exposure of Ni(cysE)2 to O2 will be presented as well as time dependent oxygen reactivity studies monitored by UV-vis spectroscopy.

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WIT AND HUMOR IN A MAN'S WORLD: APHRA BEHN'S FEMININE LANGUAGE

During the Restoration, Aphra Behn was not immune to the implications of "the woman question." Behn simply did not fulfill traditional gender roles: she was unmarried, she was highly vocal in the public arena, and she earned a living by her pen. Behn's play *The Rover*, is, in part, Behn's own answer to the woman question; it is her critique of her culture's expectations of women. Behn assumes the mantle of comic playwright, an occupation and genre socially forbidden to women, and uses her talent, wit, and humor to create a new feminine language and forum from which to make her assertions: gender roles are social constructions that limit and confine women, and men and women are more similar than British culture will admit or allow.

Comedy is a less threatening forum than is drama, and though Behn's humor is sometimes dark in *The Rover*, it helps exemplify the conflict women feel about their status in society. The genre of comedy, the carnival setting, and the character of Hellena create the perfect blend of subversive elements to convey Behn's message that society's ideology needs to be reexamined and reformed. Wit is not only possible in women, it is desirable and advantageous. Behn's declaration that a man and a woman may be of similar disposition is an argument that must continue to be asserted. This is evidenced by the fact that nearly 400 years after her death, comedy remains a male-dominated genre, and society continues to differentiate between acceptable forms of wit and humor in women.

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MECHANISTIC UNDERSTANDING OF THE INTERACTIONS OF PROTEINS INVOLVED IN THE FORMATION OF ALZHEIMER'S DISEASE'S β-AMYLOID PLAQUES

Alzheimer's disease (AD) affects the central nervous system, including cortical and hippocampal function leading to neuronal degeneration. Patients with AD experience a loss of short and long-term memory, difficulty communicating, and mood shifts. One hypothesis is that neuronal degeneration in AD occurs via a sequence of events stimulated by proteolytic processing of the amyloid precursor protein (APP).

The homeostasis of transition metal ions can affect the activation of a vital antioxidant known as copper, zinc superoxide dismutase (CuZnSOD). Variations in the intracellular environment appear to drastically affect this metalloprotein, leading to oxidative stress, posttranslational protein modification, and the aging process. A group of neuroadaptor proteins - Mint/ X11 is known to mediate docking and fusion of synaptic vesicles and binds to APP, preventing the formation of β-amyloid. Mint/X11 also binds to the copper chaperone for CuZnSOD (CCS), effectively inhibiting enzymatic activity of CuZnSOD.

The NTera 2/cl.D1 (NT2) cell line, derived from human testicular embryonal carcinoma, was used due to its pluripotent characteristics. Cells transfected with APP and X11 plasmids were tested for the overexpression of CuZnSOD in cell lysates. Coimmunoprecipitation and Western blot confirmed the interaction between APP and X11 in the NT2 cell line.

Confirmation of the interaction between APP, X11, CCS and CuZnSOD will lead the way for further studies on suppressing the cleavage of APP into the β-amyloid peptides while preserving the body's primary means of protection from reactive oxygen species by CuZnSOD.

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MODIFIED SYNTHESIS OF (BIS(O-ETHYL-L-CYSTEINATO)NI)2NI

Transmetalation of zinc finger proteins has been previously investigated as a possible mechanism for carcinogenesis. Bis(O-ethyl-L-cysteinato)Zn(II), Zn(cysE)2, has been used to model the zinc binding site of zinc finger proteins due to its similar N2S2 coordination sphere. Transmetalation of Zn(cysE)2 with nickel(II) ions results in the the title tri-metallic complex, (Ni(cysE)2)Ni2+. The tri-metallic species is also produced as part of the oxidation of Ni(cysE)2. Attempts to synthesize the tri-metallic based on literature procedures has been challenging. The resulting product is impure, and Ni(cysE)2 crystallizes from ions in no-aqueous solvents. Characterization of the purified product includes UV/Vis, NMR, mass spectra and elemental analysis. This data allows us to positively identify it as a product in transmetalation and oxygen reactivity studies.

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CHARACTERIZING THE NEURODEGENERATIVE SPECIFICITY OF BMAA TO DETERMINE A POTENTIAL LINK BETWEEN EXPOSURE TO THE TOXIN AND THE DEVELOPMENT OF ALS/PDC

BMAA (b-methylamino-L-alanine) is a non-protein amino acid that is suspected of being a possible cause for Amyotrophic lateral sclerosis/Parkinsonism dementia complex (ALS/PDC), a neurodegenerative disorder characterized by progressive dementia and parkinsonism that ultimately leads to death. Interest in BMAA began when it was discovered that the high incidence of ALS/PDC reported among the Chamorro people of Guam during the 1950s could be linked to their diet, which included cycad seeds that naturally contained BMAA. So far, research has been able to confirm BMAA as a neurotoxin, but further research is necessary to establish an association between the development of ALS/PDC and exposure or consumption of BMAA. Using Canton S flies as an insect model, we hope to determine the neurotoxic mechanism of BMAA. The three classes of neurons we are interested in are: motor neurons, which are associated with ALS; cholinergic neurons, which are associated with Alzheimer's Disease or disorders characterized by dementia; and dopaminergic neurons, which are associated with Parkinson's Disease. Canton S flies that have had their motor neurons, cholinergic neurons, or dopaminergic neurons transgenically modified to co-express green fluorescent protein (GFP) will be treated with BMAA. Fluorescent microscopy will be used to assess cell viability in response to the toxin. The results from this study will help to further establish the association of BMAA with ALS/PDC, potentially providing valuable insights in the development of successful chemical and therapeutic treatments for some of today's most detrimental and prominent neurological disorders.

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PERFORMING IN PRISON: AN EXPLORATION OF GENDER PERFORMANCE AND SEXUALITY, HEGEMONIC MASCULINITY, AND MALE PRISONS AS A GENDERED SETTING

This paper explores (1) gender as a performance, (2) sexual norms, and (3) male prisons as a gendered setting that encourages masculine gender performance, and (4) proposes suggestions for future studies on related topics.

Empirical research on gender and sexuality in prison is scarce. The bulk of research is centered on sexual violence in male prisons, and few studies have looked at homosexuality. I conducted a preliminary study on the literature focusing on gender and sexuality constructions, and hegemonic masculinity in male prisons.

Discussions of gender are in reference to men and women, boys and girls. An individual's sex, then, is assigned at birth or by sex chromosomes before birth and is referred to as male, female, or binary (category identified as both male and female according to the genitalia at birth). Finally, sexualities are the activities that we engage in, which can also refer to sexual orientation, or whom you are attracted to.

For this paper, I found that male prisons mirror gender and sex norms of the outside world. Masculine ideals are performed as male inmates (a) exhibit individual power, (b) avert emotional feelings, and (c) disregard "non-male" gender identities and sexual behaviors. Future research should address inmates' individual experiences with gender identity and sexuality.

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SELENIUM INCORPORATION AND PARTITIONING IN 'JOSE' TALL WHEAT GRASS (THINOPYRUM PONTICUM CV. JOSE) IRRIGATED WITH SALINE DRAINAGE WATER.

In the western San Joaquin Valley (SJV) of California, re-use of saline drainage water (DW) for irrigation has been conducted primarily to dispose of selenium (Se)-enriched DW with minimal impact to the environment. Due to extreme water shortages in recent years, this DW is now viewed as a valuable alternative water source, particularly for forage production. 'Jose' tall wheatgrass (TWG) is highly salt tolerant forage that has performed well, having adequate dry matter production and quality even when grown in soils of 20 dS/m ECe. In soils where Se is very high, this forage has accumulated up to 10 mg Se/kg DM when abundantly irrigated with saline DW. Conversely, in the eastern SJV, soils are low in Se and dairy cattle producers often supplement their animals with inorganic sodium selenate. In fact, lactating cows are responsible for an approximate annual input of 3405 kg of Se into the San Joaquin and Sacramento Valleys, primarily as feed additives.

The overall goal of the research is to evaluate the potential of utilizing TWG as a substitute for Na selenate in cattle diets. Specifically, our objective is to identify management practices resulting in higher Se incorporation in TWG and to determine its bioavailability for cattle. A greenhouse study was initiated with irrigation waters of two salinities (EC 3 and 12 dSm-1) and two selenium concentrations (350 and 1000 ppb), along with three cutting heights (20, 40, 60 cm) arranged in a split plot design with the forage grown in pots containing a 60:40 mix of field soil and sand. No effects of cutting heights were found. Selenium accumulation in the forage was as high as 11.65 µg/l under high saline and high Se treatments which was relatively low under low saline and low Se conditions.

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TWO-DIMENSIONAL GEL ELECTROPHORESIS AND MASS SPECTROMETRY TO ANALAYSE *Drosophila melanogaster* PROTEOME IN RESPONSE TO THE NEUROTOXIN β-*N*-methylamino-L-alanine (BMAA)

β-*N*-methylamino-L-alanine (BMAA) is a neurotoxin commonly found in cycad seeds. This non-protein amino acid is produced by cyanobacteria that live on the roots of the plants. Consumption of food containing BMAA over a long period of time has been linked to neurodegenerative diseases such as Amyotrophic Lateral Sclerosis-Parkinsonism Dementia Complex (ALS/PDC). However, the role of BMAA as a neurotoxin has been highly debated. The objective of the study is to use *Drosophila melanogaster* Canton S as a model system to analyze proteome of fruit flies treated with an environmental neurotoxin BMAA, and compare the protein profile to control flies. This has broader implications for studying human disease, since ~60% of all human proteins have similar counterparts in the fruit fly. Proteomics allow the study of small changes in protein production over the broad scale of all proteins in an organism's proteome.

2 days and 5 days old Canton S flies are treated with different concentrations of BMAA and the cell lysates are extracted by centrifuging the sample at 12,000 rpm for 15 min at 4^{o}C. The protein content in the supernatant is determined using BCA assay. Combinations of proteomic techniques like isoelectric focusing (IEF), high resolution two dimensional gel electrophoresis (2-DGE), in-gel tryptic digestion and mass spectrometry are used to create a protein profile. Data yielded from mass spectrometry is queried with the MASCOT/SWISSPROT database to identify the protein in the spots. This study will help in protein-expression profiling i.e. identification of Canton S fly proteins as a function of exposure to neurotoxin BMAA, and differential analysis i.e. comparing and determining which proteins are expressed differently in toxin treated compared to control flies. This information can further be used as a means of detecting potential drug targets in disease.

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DIFFERENCES IN RATINGS OF QUALITY OF LIFE BETWEEN SPOUSES WITHIN AN OLDER, MARRIED POPULATION IN THE CENTRAL VALLEY

Current theories about perceived marital quality indicate that as couples mature together quality Current theories about perceived marital quality indicate that as couples mature together quality improves, nearly mirroring levels found in newlywed couples. Marriage is only one component in a person's subjective rating of their Quality Of Life (QOL). QOL encompasses many areas besides marriage, such as money, mood, and physical health. Studies of QOL ratings in older marriages have only assessed spouses as part of a caregiving dyad. Findings consistently show that caregivers endorse lower QOL than the carereceiver perceives it to be. The aim of the present study is to investigate if this difference exists within spouses that are not in a caregiving situation. We hypothesize that there will be a difference in self versus spouse ratings of their partners QOL and that this difference will favor the wives being better predictors of spouse QOL.

A sample of 13 older (mean age = 75.7 years) and married (mean length of marriage = 52.1 years) couples was recruited from the local community. All participants were administered the Self and Spouse versions of the QOL-AD.

Preliminary results indicate a lack of support for the research hypothesis. Average difference on Self vs. Spouse QOL ratings were not significant when comparing self ($x\square = 40.54$, $\sigma = 6.02$) versus spouse rating ($x\square = 39.42$, $\sigma = 5.95$), $t(12) = .938$, $p \leq .05$. Subsequent analysis of the data when controlling for the difference between self vs. spouse QOL scores when controlling for gender, also yielded no significant difference between self and spouse ratings of QOL. Wives were only slightly better at predicting husband QOL ($x\square = 8.38$, $\sigma = 3.95$), than husbands were at predicting the wives QOL ($x\square = 8.00$, $\sigma = 3.54$), $t(12) = .379$ $p \leq .05$.

These findings strongly suggest that within the general population, spouses in long-term marriages are relatively accurate predictors of their spouse's QOL. The implications for this finding are significant for non-caregiving spouses because it demonstrates that these spouses are able to accurately assess their partner's perception of Self QOL. It maybe that older, married couples have unique communication styles in which they are more candid about issues affecting their QOL. Future study should focus on investigating if these communication patterns exist and how they are affected when a spouse must adopt a caregiving role.

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RELATIONSHIP OF TIME-MANAGEMENT BEHAVIORS TO THE EFFECTIVENESS OF CHEMISTRY PRELAB ASSIGNMENTS

It is well documented that the use of prelabs as part of undergraduate science course curricula results in increased student learning. This study seeks to establish the time-management "identity" of our undergraduate general chemistry students. This information is subsequently used to investigate which groups are helped most by our current practice of requiring prelabs to be handed in at the beginning of lab sessions.

The various lab sections of Chem 2 were partitioned into two groups. One group (six sections, total of 141 students) was assigned prelab exercises due at the beginning of the next lab session. The other group (10 sections, total of 231 students) was the control group and did no prelab exercises. Two surveys were given, one to establish the time-management "identity" of sections, and one after all prelab exercises were completed which investigated the perceptions of the students. An analysis of the grades received on lab report scores quantified the changes resulting from the prelab intervention.

Grade analysis showed that the section helped most by our current method of administering prelabs was made up of students who self-identify as non-procrastinators. In a seeming paradox, the sections helped least are the average procrastinators while the section with the highest procrastination scores benefited significantly. The perceptions of students on the effectiveness of prelab assignments matched the results from non-procrastinators well, but the perceptions of average procrastinators were at odds with their scores.

While this study verifies that the current method of requiring prelabs to be handed in at the beginning of lab sessions is demonstrably better than not requiring prelab assignments, it also shows that the practice is not benefiting the majority of students to any great degree. The conclusion is that other methods of prelab exercises may be more beneficial to undergraduate student learning and should be investigated.

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THE MYTHS OF MATERNAL THINKING: WHAT DOES IT MEAN TO BE A MOTHER IN AMERICA

Are you a "good" or "bad" mother? It seems that in today's society women can only fall in one category. The good/bad constructs of mothers are fueled by one another. They both co-exist together and you cannot have one without the other. Women are often labeled good or bad mothers based on their socioeconomic backgrounds. Through this documentary the good and bad mother dichotomy will demonstrate how it works to create motherhood and how the labels influence mothering. The good and bad mother mythology is so embedded in American society, it leaves mothers with fear to reach out and ask for help.

My documentary will specifically look at motherhood and mothering here in the valley. Mothers are very affected by the intersection of race, class, culture, and other variables that impact a woman's identity and the life choices she makes. The documentary was shot over a period of several weeks. I used the snowball method to search for a diverse group of mothers willing to be filmed over a couple of days. Sit down interviews were done on camera that consisted of three open-ended questions. Extensive editing of the documentary made this film come to life.

This documentary is critical because it will bring to the forefront the many sides to a story about motherhood and mothering. Their diverse stories helped me understand the many types of mothering styles. In the many experiences women face, women need to know that many forms of mothering exist. Mothers no longer have to fit in just one box.

With this documentary I was able to give these mother a voice, a new way to look at motherhood. As women they mother differently depending on their circumstances and adversities they face in their lives. These mothers always have their children's best interests at heart.

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EXPLAINING HYDRODYNAMIC DISPERSION USING MEASURABLE PHYSICAL PROPERTIES

Hydrodynamic dispersion in porous media is a process by which solutes travel at different velocities because of differences in velocity of flowing water. Dispersion is encountered in a vast variety of fields including hydrogeology, chemical engineering and oil engineering processes. Currently, dispersion in groundwater flow is described as being analogous to a diffusive process. This analogy, originally introduced for mathematical expediency, has several flaws including (a) lack independent physical based determination of dispersivity and (b) scale dependence of the dispersive process. We propose a model, which is by design, scale independent and relates hydrodynamic dispersion with independently measurable macroscopic physical properties, namely specific surface area, porosity, and permeability. In order to analyze the validity of our model, we compared the accuracy of the classical solution to the solution of our model. This comparison was done by using experimental data from a published paper, which analyzed 113 column tests with glass beads (one of the two most utilized methods of dispersivity calculation).

The results of this analysis allow us to state that the description of hydrodynamic dispersion provided by our model is as accurate as the classical solution for a wide range of situations. But more importantly, our model also allows us to forgo the assumption of hydrodynamic dispersion being described as analogous to a diffusive process and relies on independently quantifiable macroscopic quantities.

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THE EFFECTS OF FASTING AND RE-FEEDING ON GROWTH AND GLUCOSE METABOLISM IN THE TILAPIA, OREOCHROMIS MOSSAMBICUS

Animals are typically faced with periods of limited or no food resources. As such, animals have adapted to survive these periods of limited energy intake by redirecting metabolic energy (e.g. glucose) towards essential physiological processes in order to maintain homeostasis. Many fish species are susceptible to food deprivation, and fish must tolerate these conditions year round. The growth hormone (GH)/insulin-like growth factor (IGF) axis plays a central role in promoting growth in all vertebrates, as well as influencing overall metabolism. Yet, in mammals and fish, fasting negatively alters the GH/IGF-1 axis, reducing growth. The current study investigated the effect of fasting and re-feeding on growth and glucose metabolism in the tilapia, Oreochromis mossambicus. Tilapia were subjected to three treatments: fasting for six weeks; fasting for four weeks and re-fed for two weeks; and fed for six weeks (control). Fasting resulted in a significant reduction in growth, whereas re-feeding reversed the negative effects of fasting on growth in tilapia. There was no change in plasma glucose in tilapia fasted for six weeks compared to control animals. However, plasma IGF-1 levels were significantly reduced after six weeks of fasting. Re-feeding elevated plasma IGF-1 levels to fed levels, but was not significant to fasted levels. Liver IGF-1 mRNA also remained unchanged after six weeks of fasting. These data support that tilapia are not growing in a food deprived state, supported by decreased plasma IGF-1 data during a six week fast. No changes were observed in plasma glucose after six weeks of fasting, and this may be due to an increase in gluconeogenesis.

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KINETICS AND MECHANISM OF THE REACTION PROPYLENE OXIDE (PPO) IN THE TROPOSPHERE

Propylene oxide (PPO) is an organic compound which has been proposed as a replacement for methyl bromide in post harvest fumigation. Since its use may result in significant releases of the chemical into the environment, it is important to understand its chemical degradation pathways in the atmosphere. However, there is little information in the literature on either its rate of removal from the atmosphere or the reaction products formed from its breakdown. The goal of this work is to determine the residence time for PPO in the atmosphere, its major chemical loss processes, and its environmental fate.

A smog chamber coupled to a Fourier Transform Infra Red (FTIR) spectrometer was used to investigate the chemistry of PPO. Mixtures containing PPO, air and a radical precursor were introduced into the chamber, and the chemistry was initiated using internally mounted photolysis lamps. FTIR spectroscopy was used to monitor the disappearance of PPO and the formation of reaction products. The reactions of PPO with chlorine atoms, ozone and hydroxyl radicals were investigated.

The reaction of PPO with hydroxyl radicals was found to be the major loss process for PPO in the atmosphere. The residence time for PPO was estimated to be approximately three weeks. The major reaction products from its atmospheric breakdown include acetic formic anhydride(AFAN), acetic acid, formic acid and carbon monoxide. The implications of these results will be discussed.

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SEA TURTLE NESTING AS A PROCESS THAT IMPACTS BEACH ECOSYSTEMS

We investigated mass nesting activities of olive ridley sea turtles (Lepidochelys olivacea) in Ostional, Costa Rica to examine whether turtle eggs laid in beach sand may increase the biological diversity of sandy beach ecosystems. Based upon research permit guidelines, turtle nesting beaches were examined as six meter2 grids excavated down to 1 meter. Each sampled grid was examined for animal tracks, was excavated with hand shovels, and the sand poured through 2.0 millimeter mesh. Turtle eggs encountered during excavation were examined for mortality, and returned to the clutch. Control samples were taken from neighboring beaches devoid of turtle nests.

Humans, domestic dogs, raccoons, black vultures, crabs, and several other groups of organisms breeched sea turtle nests (N = 2913 nests; 330,220 eggs). Bayesian probability and ANOVA analyses indicated that turtle nests became increasingly contaminated with small organisms over time (Bayesian prior = new eggs; post = 6-10 days after eggs were laid). Flies (sarchophagid, calliphorids) prior = 1.19, post = 1.9 (P = 0.001); filamentous fungi prior = 1.14, post = 1.92 (P = 0.032); and mites (actinedida) prior = 0.59, post = 0.81 (P = 0.004).

Proliferation of small organisms in decaying sea turtle nests may generate odors sensed by animals that locate and breech the buried nests. This activity may have an upwelling effect, as egg debris from breeched nests is brought to the surface by egg predators. Egg debris is churned under again by subsequent nesting sea turtles. Upwelling and turnover infuses sandy beach ecosystems with organic nutrients from turtle nests. This activity fosters high species diversity in unique sandy beach ecosystems that are biologically engineered by large nesting reptiles.

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LOVING GOD, LOVING SELF: INTERSECTIONS OF GENDER, SEXUALITY AND FAITH

Much of what we know about religion is its patriarchal values and systematic oppressions upon race, class, gender and sexuality. Throughout time, we have seen the segregation, bourgeoisie and proletariat exploitation; and the second-class citizenship of women and now the Lesbian, Gay, Bisexual, Intersex, Transgender, Queer (LGBITQ) community all justified in the name of God and morality. The battle between the separation of church and state engrosses minds and media across the United States. The connection of God and country spread throughout the country, gaining supporters and opposition. Yet, on both sides of divisions, essentialism rings of labels, stereotypes and misconceptions of the religious and marginalized. The debates between the two overwhelmingly negate the intersections of both, moving beyond dichotomous lines of right and wrong. Therefore, this paper will demonstrate through an ethnographic look how feminism, methodology, LGBITQ community and religion face binary categorizations. Through the respondent, themes of self-identity, acceptance, faith, scripture, family and patriarchy affect and mold the dynamics of happiness and self.

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PATHWAYS FOR TRANS-DISCIPLINARY WORKFORCE DEVELOPMENT FOR FOOD AND AG INDUSTRY THROUGH TRAINING AND RESEARCH

The goal of this research is to develop a pipeline strategy for the generation of skillful workforce in the trans-disciplinary field of science and technology intended for food and agricultural industry. California State University , Fresno is located at the center of 13-county San Joaquin Valley (SJV), which is central to California. SJV is one of the most productive agricultural areas in the U.S. generating 25% of the nation's food and agricultural productions. A sizable portion of employments in the valley goes to food and agriculture industry and its related sectors. Unfortunately, the per capita income in the SJV is the lowest and also, the industry is not among the top ten job-growth industries. The goal of California Staet Univesity, Fresno is to serve as a resource for the economic and intellectual development of the region. However, the graduates prefer to work outside the region and the state, due to the fact that they find jobs as per their qualifications that are solely based on the traditional science-driven programs. This in turn implies that the regional food and agriculture job requirements are not compatible with their professional degrees. Therefore, this research is carried out to advocate how transformational scholarship will play major role in terms of generating demanding workforce for food and agriculture sector. We will present detail pathways in order to achieve two primary objectives such as development of (1) trans-disciplinary based learning and teaching, (2) a closed-loop pipeline strategy for information literacy, learning, and employment. This encouraged us creation of a setting for new ways of fostering successful programs that leads to development of workforce development needed for the region. The research outcome enabled us to apply for a major grant proposal to the funding agency for securing equipments and resources.

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WHEN VIEWPOINT MATTERS: HOW NARRATIVE PERSPECTIVE AND SOCIAL DISTANCE INFLUENCE VIRTUAL AGENT PLACEMENT

Virtual character agreement has an underlying spatial component, where increased physical distance is associated with decreased shared attitude (Matthews & Matlock, 2010). This work addresses the relationship between expected character interaction and agent placement in a simulated work environment.

After imagining being either an employer or an employee in a meeting about salary adjustments, participants drew an employee figure in a virtual office environment. When taking the employee's perspective, participants placed virtual agents reliably closer to their employer's agent when expecting to discuss a pay raise, and farther away when expecting to discuss a pay cut. No inter-agent differences were found when readers took the employer's perspective.

These results suggest that agent viewpoint is important in virtual environments. Not only does inter-agent distance influence employer/employee agreement, as previous work has shown, this relationship seems to be bi-directional, where narrative content also influences virtual agent placement.

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WEBSITE USABILITY ANALYSIS – FRESNO STATE'S HENRY MADDEN LIBRARY

In 2009, the freshly renovated on-campus library contacted the Fresno State Anthropology Department looking for ways to improve student/library involvement. After presenting the results of an initial study, the department was contracted in 2010 to conduct further in-depth usability research specifically for the library's website.

Methods for this usability research involved observing a sample of Fresno State Junior students (with technological recording assistance) run through a list of common academic questions (such as finding a journal article, or inquiring if a book was on reference) using only the library's website as a gateway. Ongoing research will assess the impact recent website changes have made on student usage using the same standardized method.

Findings from this ongoing study point to substantial differences in student expectations compared to their librarian administrators. Librarians, due to non-transparent differences in how queuing databases work internally compared to the 'Google' system natural to students, have trouble understanding the difficulty curve associated with learning their *de facto* method of data retrieval.

Changes to the Madden Library website, including merging several search databases into a single box and reorganizing pull-down menus, were implemented after the first phase of the study. Preliminary conclusions from the second phase suggest creating a 'Google' box for internal website searches in addition to the database 'content' box.

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AN EXAMINATION OF RAPE IN EARLY MODERN LITERATURE

In a time period shadowed by the supremacy of male language and authority, women writers had to find accessible avenues to promote and defend their female power. The early modern period contained less than two percent of women writers; a statistic dominated by the role of the church in silencing women and the role of the government in deciding what was 'good enough' to publish. Asserting female worth was almost never championed since a woman's function in life was that of submissive wife and dutiful mother, not of intelligent and revolutionary writer. Helene Cixous claims that women must "write her self" and "put herself into the text," a concept almost completely foreign to 17th century female literature. However, it is in the work of Marguerite de Navarre that female text emerges; it is in this feminine writing that Navarre's "movement" through the history of the canon reveals the truth about women and rape. However, her role as writer becomes complicated by the many ambiguities present in the writings of rape and in the many definitions drawing attention to the crime as anything but sexual violence. For my purposes, I would like to re-establish rape as an act and a crime, for it is an active force against women that steals the most important piece of female agency and silences her. In my primary text, Navarre's The Heptameron, the stories concerning rape reveal such truths, but also redeem women as strong and powerful preservers of chastity; Navarre emphasizes the importance of being female and the degree to which female power is underestimated. This écriture feminine (feminine writing) promotes subversive thought against male threat, dismantling the foundation of phallocentrism and reorganizing language around bisexuality, a feminine privilege. The permeability feminine language provided was enough to voice silences and reify foundational truths about women. Marguerite de Navarre harnesses her écriture feminine as a way to rewrite the truth about her history and the history of all women in the Renaissance.

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THE EFFECTS OF NEUROTOXIN BMAA ON MOTOR CONTROL IN FRUIT FLIES

L-Glutamate is the principal excitatory neurotransmitter in the neuromuscular junction (legs) and central pattern generator (ganglion) of Drosophila melanogaster. Excitation of these regions modulates walking and other behaviors. The environmental neurotoxin L-BMAA (N-betamethyl-amino-L-alanine) is believed to act as a glutamate agonist: its structural similarity to glutamate causes pathological excitatory responses. We have investigated the mechanism of L-BMAA action by quantifying its effect on walking behavior as a function of dosage and time. The ability to climb slope has proven to be a sensitive test, so we have constructed bowl-shaped walking arenas that presents a range of inclines from 0° to 15°. Thus average position within the arena is correlated with motor ability. Positions were obtained by automated tracking of video recordings and further analyzed in terms of walking speed, duration, and frequency. Following oral doses in their feed (ranging from 0 to 50 mM L-BMAA) flies were filmed for 10 minutes daily over 4 days. Lower dosages of L-BMAA increased walking speed—obviously an excitatory response—and both the frequency and length of walking bouts. This is consistent with previous behavioral studies of the central pattern generator, which suggest that stimulation increases step frequency (hence walking speed) and decreases the length of inactive periods (hence increases bout duration). Higher doses of L-BMAA caused an apparent loss of control and severe motor impairment after the first day of treatment. Whether this is an exaggerated effect on the central pattern generator, or a competing effect on the neuromuscular junction, is the subject of ongoing research.

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INTERPERSONAL COMMUNICATION IN THE DIGITAL WORLD

The act of communicating and interacting with others is present in every aspect of one's life, whether we are conversing with someone over the phone or arguing back and forth in court pleading the first amendment, the ability to effectively communicate across is a necessity. As humans we are social beings. Collective communication is an essential part of existence and more precisely viewed as inevitable during an individual's lifetime. Social interaction in itself has come a long way. What had started out as letters sent from one person to another and had then developed into telephone conversations, is now a simultaneous world of emerging social networks. With more than 500 million active users, it is apparent that social networks, like Facebook, have substantially altered the way we communicate- especially when taking into account the fifty percentile of users who use the site on a daily basis. The purpose of this research is to analyze the dynamics of interpersonal relationships on the social network known today as Facebook. Through a series of self reported analyses of Facebook users and communication experts, alongside previously acquired qualitative data and its inquiry, I will seek to answer questions such as: are the relationships constructed through interpersonal dialogue on the social network meaningful to the individual behind the conversation, what is the satisfaction level of the virtual relationships people are holding, and whether or not the Facebook user feels understood on the opposite end when engaging in dialogue-all questions of which will be compared to their face-to-face relations. Upon acquiring my data, I will then evaluate whether or not the Shannon-Weaver model (1949) of information theory is applicable to the new advancement in communication. This information will test the relative importance of previous research in today's world, while providing a better understanding of interpersonal dialogue through Internet based mediums.

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GIS ASSET MAPPING OF CITY OF MERCED: A COLLABORATION BETWEEN UNIVERSITY STUDENTS AND THE COMMUNITY

INTRODUCTION: To evaluate the health of the city of Merced, a student led initiative using Geographic information system (GIS) was used to visually display the concept of "place matters", meaning the environment of a community will affect the health of its residents.

METHODS: GIS was used to examine the geographical distribution of resources that may contribute to the disparities on community health and development. University students selected variables to map from a list of important community assets that were compiled from interviews with the County Board of Supervisors. The indicators mapped with GIS were: grocery stores, fast food restaurants, liquor stores and physician locations. The City of Merced is naturally divided by Highway 99 and Bear Creek into three section which for the purpose of the study was labeled Upper, Mid and Lower Merced. RESULTS: Fast food restaurants broke down to Upper Merced having 13 locations, Mid Merced with 10 and Lower Merced with 3. Liquor stores locations were equally distributed between Mid and Lower Merced with 12 stores each, whereas Upper Merced had 7. The distribution of grocery stores was 5 for Upper Merced, 12 for Mid Merced and 4 for Lower Merced. Upper Merced had 34 physician locations while Mid Merced had 8 locations and Lower Merced had 3 locations. CONCLUSION: From the findings it can deferred that there is an unequal distribution of resources in the City of Merced when it comes to medical and food access as Upper and Mid Merced's access to resources outnumber Lower Merced's. The consequences of the unequal distribution are likely to contribute to the city's health disparities however this remains to be studied. The university students and community partners will continue GIS asset mapping, expanding to measure the entire county with variables such as alternative medicine and auxiliary care.

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EFFECT OF PLANT DENSITY AND NITROGEN ON SWEET CORN YIELD AND QUALITY

U.S. is the largest sweet corn growing country (processing and fresh market) accounting for more than 45% of the world's sweet corn production. In 2009, Fresno County produced approximately 4.3% of the country's fresh market sweet corn. Maximizing production of high quality sweet corn at low cost is the grower's goal to increase profitability. Optimum plant density and nitrogen (N) input has shown to be critical to improve sweet corn yield and quality. Plant density affects the competition for water, light and nutrients among plants in the field, consequently influencing plant development and yield. Nitrogen is an essential element for corn and can result in higher productivity up to a certain limit. In addition, increase in plant density elevates the sweet corn demand for N up to an optimum point. Therefore, the objective of this study was to look for the best combination of N level and plant density for Mirai 148Y hybrid on yield quality in Fresno County. Three N levels (150, 200 and 250lb/acre) and three plant densities (25000, 30000 and 35000 seeds/acre) were tested. The lowest plant density with 200 lb/acre of N resulted in the highest yield and better quality.

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THE INCIDENCE OF CONGENITAL ANOMALIES IN A SINGLE PERINATOLOGY PRACTICE IN THE CALIFORNIA CENTRAL VALLEY

Introduction:
Fetal anomalies are a leading cause of fetal mortality and morbidity. An estimated 3% of infants born in the United States have birth defects, which may be related to genetics or environmental agents. The purpose of this study was to determine the incidence of birth defects in the California Central Valley.

Methods:
A retrospective chart review of 8,456 level II ultrasounds of patients examined between January 2006 and October 2009 was performed. The incidence of major fetal anomalies was determined and compared to the national incidence reported by the Centers for Disease Control and Prevention. We included neuronal defects, cardiac anomalies, and gastroschisis. The 95% confidence interval was calculated for each anomaly.

Results:
Of the 8,456 ultrasounds reviewed 8.6% (732) were found to show fetal anomalies. This finding was statistically significant and greater than the national incidence of 3% (CI 0.081-0.093, $p<0.05$). It included increased numbers of patients with anencephaly, (CI 0.0004-0.002, $p<0.05$), spina bifida (CI 0.0007-0.0025, $p<0.05$), atrial septal defects (CI 0.0005-0.002, $p<0.05$), and hypoplastic left heart (CI 0.0003-0.0015, $p<0.05$). Anomalies not found to be statistically increased in number included encephalocele, gastroschisis, transposition of the great vessels and Tetralogy of Fallot. For ventricular septal defects the incidence was lower (CI 0.001-0.003, $p<0.05$).

Conclusion:
The incidence of major fetal anomalies in the California Central Valley is significantly higher than that reported by the CDC. Possible mechanisms include exposure to pesticides and herbicides given that this is a primarily an agricultural region.

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SUICIDE (JISATSU) AND GROUPISM (SHUUDAN) IN JAPAN

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

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KEY FACTORS OF RECIDIVISM IN CONVICTED INTERPERSONAL VIOLENCE OFFENDERS: A QUALITATIVE STUDY

Interpersonal violence (IPV) offenders have been identified as victims or have been exposed to interpersonal violence throughout childhood in their families (Carrell, 2009). IPV offenses range from verbal threats, emotional and mental manipulation, financial manipulation and domination, to pushing, slapping and all other physical assaults. Convicted IPV offenders have been found to suffer from depression and struggle with drug and alcohol abuse (Carroll, 2007). Research reveals that 95 percent of all inmates have a release date, of which 50 percent turn back into a re-entry date within three years (Lawrence, 2010). This phenomenon is known as recidivism. Recidivism being a relapse into previous behavior, in this case involving secondary criminal conviction(s). This study focuses on recidivism in a specific type of IPV- domestic violence (DV) by (1) examining the crucial factors that contribute to IPV (2) exploring the degree that each critical factor impacts DV offender recidivism and (3) analyzing the perceptions of professionals regarding IPV recidivism.

Using the qualitative cross sectional study method, key factors of recidivism in DV offenders was analyzed utilizing employee feedback from various anonymous service providers in California. All service providers work with the IPV offender and victim populations. Each participant responded to 13 open ended interview questions connected to current research and related to their professional experiences working with the DV offender population. Through thematic data analysis several poignant areas emerged. Offender commonality of theme and importance included client attitude, drug/alcohol use, and depression. Feedback on client childhood exposure to DV revealed somewhat surprising results. Willingness, participation, and open mindedness reflected and even dictated client's program successfulness, completion, and enduring change of attitude and behavior. Respondents' professional perceptions of IPV recidivism on aspects such as counselor impact on treatment successfulness and areas of continuing/aftercare services are also discussed.

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REASONING SESSIONS WITH IRIE VATOS: MEXICAN-AMERICAN RASTAFARI IDENTITY

Rastafari research in the Americas have largely been focused in and around U.S. and Canadian urban centers, where this Jamaican 80 year-old Afro-centric social movement, belief-system, worldview, and lifestyle is often perpetuated by descendants of enslaved Afrikans who wish to connect to their Afrikan roots. Not much has been said for other Pan-American ethnic groups who look to Rastafari to inform their axioms and folkways. Reggae music is a chief cultural resource, which has transmitted Rastafari cosmology and allowed the mores to go beyond the confines of Jamaica. Rastafari has crossed ethnic groupings to aid in the positive reconstruction of Brownness and Blackness. Why do Mexican Americans "become" Rastafari and what is the impact on their lives? This paper delves into the lives of four Mexican American Rastafari males to begin to answer these questions. Life story interview strategies were employed to understand the common narratives expressed by these men. Mufasa, Leo, José, and Ancient King Selah (AKS) all engage in reggae music production, either as DJs or as reggae musicians. They expressed Rastafari to be an alternative worldview and lifestyle to present day socio-cultural norms. Among other things, Rastafari provides a meaningful source of strength, inspiration, and protection from harsh xenophobic physical and psychological environments. Mufasa, a 28 year-old Razteca (Rastafari-Aztec) is not alone when he says, "My life begins when I give thanks to Jah [the Rastafari living God]" (2010).

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INVESTIGATING THE EXPRESSION DYNAMICS OF CELL ADHESION GENES DURING GASTRULATION IN NEMATOSTELLA VECTENSIS

The objective of this study is to examine expression patterns of cell adhesion genes (cadherins and integrins) during development in Nematostella vectensis. The phylum Cnidaria is the sister group to Bilateria and serves as an appropriate out-group to study the diversity and complexity of bilaterians (including all animals with bilateral symmetry like mice, flies, humans). Among cnidarians, the sea anemone Nematostella vectensis has emerged as an important model system to investigate cnidarian development due to its simple body plan, developmental plasticity and preservation of ancestral traits. Gastrulation is the development of distinct tissue layers in the embryo that requires the coordination of many cellular processes like cell adhesion. Studying the expression of cell adhesion genes involved during gastrulation in cnidarians and comparing them to homologs in bilaterians can provide insights into the evolution of these gene families and the contribution of adhesion to gastrulation. In situ hybridization analysis of Nematostella cadherin genes related to the Fat- and Flamingo- families revealed a higher level of expression at the planula stage of development, implicating them in signaling during tissue growth and cell polarity processes. Similar expression analysis of Nematostella α and β integrin genes showed expression during both gastrula and planula stages although the expression was more pronounced in the endoderm. These data suggest that integrins may regulate cell shape and contractility during gastrulation, as well as adhesive events later in development. Taken together, the expression patterns of cadherins and integrins in Nematostella imply that regulation of cell adhesion is crucial to the molecular control of gastrulation in this species.

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FROM TRAUMA TO TRIUMPH: EMOTIONAL REGULATION IN THE PRESENCE OF CHRONIC PAIN AND THE RELATIONSHIP TO DEPRESSIVE SYMPTOMS AND COPING SKILLS

This study will analyze the multidimensional effects of living with chronic pain and its relationship to emotional regulation and coping strategies. Emotional regulation factors such as coping skills, levels of functionality, and distress will be reported in a factor analysis model to measure aspects of individual differences and how they affect treatment outcomes. Information obtained in this research dissertation provides further evidence that a biopsychosocial model is most advantageous to treat chronic pain patients.

The criteria for participation in this study will include individuals whom currently receive treatment at an out-patient pain management facility. Cultural and ethnical diversity will be strongly encouraged in this study sample to create a heterogeneous population that deals with comparative symptoms of chronic pain. The instruments used to assess chronic pain and coping strategies include the Chronic Pain-Coping Inventory (CPCI), the Wellness Evaluation of Lifestyles, and the Clinical Assessment of Depression.

Using a factor analysis model, the results indicated that patients who adopt positive coping strategies have favorable treatment outcomes. Patients that adopt passive coping strategies internalize pain as distressful and uncontrollable. Co-morbid depressive symptoms such as insomnia, sadness, and anhedonia are pronounced in patients that tend to catastrophize pain.

A multidimensional model of care is most advantageous to achieve efficacious treatment for a biopsychosocial approach to chronic pain management.

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ASSESSING LESSON COMPLEXITY AND TEACHING BEHAVIORS IN SPORT

The purpose of this study was to determine if improvements were gained in teaching behaviors and lesson structure by a youth sports coach following a multi-year professional development experience. There are approximately 60 million youth involved in sports in the U.S. yet there is no standardized formal training for coaches. For youth to have quality sport programs it all hinges on the quality of teaching in these settings.

An award-winning high school basketball coach was videotaped in two practices that represent pre- and post-professional development experiences, one in 2003 and one in 2010. We analyzed video of the two practices using a systematic observation system adapted from the Arizona State University Observation Instrument (Lacy & Darst, 1989). This coding system is based on the instrument developed by Gallimore and Tharp (1976) in their pioneering study of legendary college basketball coach John Wooden. We adapted the coding system to include teaching behaviors and lesson complexity.

Our results show there were some changes in the coach's teaching behavior pre- and post-professional development experiences. The rate at which the coach spoke during practice remained constant, but he gave more instruction and less management in the 2010 video than in the 2003 video. As far as lesson complexity the results showed that there was no improvement in how the coach designs lessons. The complexity of the drills varied widely across both practice sessions.

The results of this study make an important contribution to our understanding of teaching in sport settings in several ways. First, to our knowledge the coding system we developed is the first one that captures data on lesson complexity. Second, this coding system can become a valuable tool for helping coaches improve their effectiveness by raising their self-awareness – both of how they teach and how they design teaching sessions.

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FIELDING A PSYCHOEDUCATIONAL SHAME RESILIENCE CURRICULUM TO WOMEN IN SUBSTANCE ABUSE TREATMENT

The objectives of this study were: 1) to field-test Connections a 12-session evidence-based psychoeducational curriculum on shame resilience to women in San Joaquin Valley residential treatment settings, and 2) to extend research in the area of shame and stigma related to substance abuse disorders. Connections is product of Dr. Brené Brown, of the Graduate College of Social Work at the University of Houston, who utilized a grounded theory approach to articulate Shame Resilience Theory, which offers a working definition and conceptual identity for shame and explains the processes and strategies individuals use to resolve the impact and consequences of shame.

This exploratory study included 19 female subjects from three residential treatment facilities in the San Joaquin Valley; two funded by county government agencies and a third was funded by the state department of corrections and rehabilitation. The subjects attended 12 weekly group sessions. A battery of measures was administered pre-and post-test, including the General Health Questionnaire, Perceived Substance Abuse Scale, Internalized Shame Scale, the Test of Self-Conscious Affect- Version 3 and a self-evaluation of shame resilience prior to the intervention. The sample was predominantly Latinas ages 25-55. Eighty-four percent were mothers of children age 17 or less. Methamphetamine and alcohol were the most frequently used substances and mental health diagnoses included bipolar 1 and 2, depression and PTSD. The subjects had been incarcerated an average of 3.7 times and 12 of the 19 had transitioned out of a regional women's prison. The results of this exploratory research indicate statistically significant differences of $<.05$ on 9 of 12 scales/subscales administered.

A description of the results of field-testing Connections with this population will be presented. Limitations of the research and implications for social work practice and future directions for research with this evidence-based psychoeducational intervention will be offered.

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PERCEIVED STRESSORS: DIFFERENCES BETWEEN MEXICAN AMERICAN AND CAUCASIAN COLLEGE STUDENTS

Individual perceptions of stressors can shape different coping responses. To describe the complexity of this interaction, perception of stress is based on a person X situation model. While all college students share similar experiences and stressors, Mexican Americans may perceive stress differently than Caucasians because they must deal with additional stressors that Caucasians do not, such as discrimination, minority status, and language barriers. Dealing with these more extensive stressors may cause Mexican Americans to perceive comparatively less significant shared stressors as nonexistent or unimportant, while Caucasians may be more prone to acknowledging them.

Our research explored the difference in stressor perception between Mexican American (N = 30) and Caucasian (N = 29) college students. Mexican American and Caucasian college students completed The Daily Hassles and Uplifts Questionnaire (Kanner, Coyne, Schafer, and Lazarus, 1981). The preliminary results show a trend toward Mexican American students less frequently citing instances of hassles when compared to Caucasian students $t(47.05) = -1.34$, $p = .062$. An additional trend shows that Mexican American students had more intense stressors than Caucasians students $t(56) = 1.69$, $p = .097$. We are doubling the sample size to have 60 participants in each group.

The primary interpretation of these preliminary results is that Mexican American college students perceive having fewer but more intense stressors than Caucasian students. These findings argue that the presence of more severe stressors can overshadow smaller stressors to the point that they are not even identified. It is possible that as Mexican Americans are not identifying minor stressors they are less able to formulate coping strategies for them, resulting in an amplified stress load. This could help explain some of the variance in stress related physical illnesses, such as cardiovascular disease and diabetes, which have been found to be more prevalent in Mexican Americans than Caucasians.

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TESTING STUDENT KNOWLEDGE: PERCEPTION TOWARDS MISDEMEANOR CHARGES AND CONSEQUENCES OF RESTRICTED ACCESS

Misdemeanor charges are some of the most common criminal charges in California. Individuals between the ages of 18-24 have the highest numbers of misdemeanor charges in the California justice system. With drug-related problems a concern on college campuses; provisions made to the Higher Education Act (What is the exact title, is this state or federal law?) restrict financial aid eligibility for individuals convicted of misdemeanor drug related charges. By linking drug related charges to higher education financial aid the government has excluded a large group of students from receiving equal access to higher education. Misdemeanor charges can negatively impact a student's records, which restrict access to many important financial resources which could potentially impact a student's ability to succeed in the university. This study is designed to test the California State University student awareness and attitudes towards California's misdemeanor charges and drug provisions. The results of this study may identify a key obstacle to success for some CSU students. I plan to use the results from my online cross-sectional student survey to demonstrate the need for reform of the Higher Education Act.The results are also intended to identify student perceptions towards California drugs provisions, and the future consequences of misdemeanor charges on students obtaining or renewing their financial aid.

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MEASUREMENT OF DAIRY EMISSIONS USING INFRA-RED PHOTOACCOUSTIC DETECTION

The San Joaquin Valley experiences some of the poorest air quality in the United States. During its summers, ozone concentrations exceed mandated levels on a daily basis. Ozone is formed in chemical reactions involving sunlight, oxides of nitrogen (NOx) and volatile organic compounds (VOCs). In most regions, VOC emissions are dominated by vehicular sources, but in Central California, emissions from dairy facilities are believed to contribute substantially to the emissions inventory for these pollutants. Dairies are also significant sources of greenhouse gases (GHGs) such as methaneInfra-Red Photo-Acoustic Detection (IR-PAD) techniques have been used in a number of dairy emissions studies, but sampling is typically performed using flux chambers that may not give realistic emissions measurements. The goal of this work is to use IR-PAD to map the spatial and temporal variation in GHG and VOC concentrations to improve our understanding of pollutant fluxes from these facilities.

Measurements were carried out at the Fresno State dairy during July 2010. Two multi-channel IR-PAD analyzers were configured to measure ethanol, methanol, isopropanol, ammonia, nitrous oxide, carbon dioxide, methane and acetic acid. The analyzers were connected to an automated sampling system which analyzed air samples directly downwind of the dairy at four heights (1, 2, 4 and 8 m) every four minutes. Steady-state gaussian plume modeling (AERMOD) was performed to aid in the interpretation of the results.

Concentrations of nitrous oxide were independent of both time and height, indicating that there are no local sources of this compound. Carbon dioxide levels peaked between 6 and 8 am, consistent with rush hour traffic. Concentrations of the remaining compounds peaked in the early evening (6-8 pm), and the observed levels were substantially higher than typical ambient levels suggesting a large flux from the dairy. The implications of these measurements will be discussed.

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ESENSE: HUMIDITY, TEMPERATURE AND ACCELERATION LOGGER

The purpose of this project was to prototype an embedded monitoring system to encompass into Pelco products. The embedded monitoring system is designed to detect and logs shock, vibration, temperature, and humidity to diagnose defective devices and environmental situation of their product at the time of failure. Product mishandling during shipping is a risk that every manufacturer has to face. In an event of product failure this module will help the manufacturer analyze the shipping conditions it went through. The project was funded by Space Grant (NASA) and Undergraduate Research Grant (California State Univeristy, Fresno) and was done as a senior year project. The project was completed on time with hard work and team efforts. The team went through research; prototyping and final PCB design phases. The final module is capable of logging temperature, humidity and acceleration at any desired interval and the saved data can be read via USB or Ethernet protocols. The above features will come in handy if the shipping conditions lead to a product failure.

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QUANTIFICATION OF VIABLE ESCHERICHIA COLI AND ENTEROCOCCI FOR MONITORING THE FRESNO RIVER WATER QUALITY USING PMA-QPCR AND DEFINED SUBSTRATE METHODS

The Fresno River, located in Madera County, CA, serves as a water resource for one of the fastest growing California county population and is marked for recreational uses. Increasing use of the 234 square mile watershed that drains into the Fresno River raises water quality concerns, from runoff and close proximity areas containing old or failing private septic systems. This study was conducted to assess water quality standards using fecal indicator bacteria (FIB) Escherichia coli and Enterococci in the Upper Fresno River areas with greater human impact. Two methods, Defined substrate technology and molecular real time PCR (qPCR), was compared for their relative accuracy and efficiency. An intercalating dye, propodium monoazide (PMA), was used to allow qPCR quantification of only live cell DNA, so as to eliminate any false positives derived from dead cell or free DNA.

Defined substrate methods involved the use of Colilert and Enterolert kits (IDEXX Laboratories; Westbrook, ME) to enumerate E. coli and Enterococci, respectively. For molecular quantification, cells from 1 L of surface water samples were collected using vacuum filtration. PMA was added to the filters prior to DNA extraction. No-PMA samples served as controls. DNA was extracted using the Rapidwater DNA isolation kit (MoBio Laboratories; Carlsbad, CA) and used for subsequent qPCR. Indicator bacterial counts were compared to thresholds set by the U.S. Environmental Protection Agency (USEPA) and California Water Standards as safe for recreational fresh water use.

Efficacy of molecular techniques and the PMA dye will be analyzed in future molecular quantification. Traditional cultural data showed a higher than the USEPA advised count of E. coli in two June sites, and of Enterococcus sp. in all of the June and one December sample site.

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ANTI-SEMITISM AND THE DISCOURSE OF THE ISRAEL-PALESTINE CONFLICT

The objective of this research was to attempt to identify anti-Semitic content in contemporary political discourse surrounding the Israeli-Palestinain conflict. Research focused both on popular articles, interviews with community members and academic texts on the conflict, focusing on the propositions of individual arguments and whether or not those propositions constitute anti-Semitism. Secondarily, it analyzed the use of accusations of anti-Semitism in the discourse to assess whether such accusations were consistent with the findings and, if not, where the discrepancies were.

The result was the creation of a distinction between arguments of different kinds (where kinds are assessed based on shared premises) and the assessment of whether the kinds of argument qualified as anti-Semitic. It is clear that some kinds of argument do qualify as anti-Semitic, while other kinds of arguments (though perhaps objectionable on logical grounds) are not. The accusations of anti-Semitism in popular discourse often fail to note the distinction. The conclusion is that there is anti-Semitic content present in the contemporary discourse, but that many popular assessments do not account for it adequately, for a number of reasons.

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MOTION PERCEPTION USING A CRITICAL BRANCHING NEURAL NETWORK

While many artificial intelligence programs have been successful at approximating specific intelligent behaviors, the brain still harbors many secrets about how to do so with generic, self-organizing, efficient, and flexible systems. The current project investigates how certain features observed in biological cortex might be beneficial when applied to an artificial neural network. Performance of the network is tested on various perceptual tasks. Visual perception is an interesting problem for both biological and computational systems, as it is an abundant and important source of information about the environment, yet requires the rapid processing and integration of a diverse set of features including size, shape, orientation, motion, and color.

One characteristic of cortical circuits is that connections between neurons are recurrent at varying scales, producing patterns of activity that are ongoing and dynamic. Consistent with the reservoir computing approach, the current model creates a pool of generic, biologically plausible units (spiking, here) with similar random recurrent connections. The network self-organizes using a 'critical branching' algorithm, which tunes weighted connections so that each unit's spike produces, on average, one other unit to spike. This process results in a network that is tuned to match a given input environment, from an information processing perspective. Biological cortex has been hypothesized to utilize a similar technique. The activity patterns generated in such a network are continually in flux, and in this sense they don't produce stable, attractor-like outputs, but instead the time-varying state of the network can be extracted by a separate linear classifier. To test how information is processed in a network with these features, simple moving stimuli are presented to the model and the classifier is trained to perform motion-sensitive prediction and categorization tasks.

The model was successfully able to categorize the direction of an object's motion, predict the future location of objects with motion patterns varying in complexity, and classify the moving objects themselves. Results match behavioral studies in that motion cues enhance object classification, and preliminary results also show that objects with spatio-temporally contiguous motion are more easily classified. The ongoing dynamics of the network provide it with a generic memory capacity, allowing for the integration of information from multiple time-steps (such as is necessary for tasks involving motion). All tasks can be carried out in parallel on the same self-organizing circuit. These results suggest that critical branching neural networks may provide general bases for spiking models of motion processing and other perceptual and cognitive functions, and suggest a potential mechanism by which diverse types of informational cues can be processed simultaneously in a single circuit.

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A POLYNOMIAL INVARIANT OF 3-VALENT GRAPHS EMBEDDED IN THE 3-SPACE

We construct a polynomial invariant of rigid vertex isotopy for 3-valent graphs embedded in the 3-dimensional space, via the formalism approach to knot theory and a graphical calculus that assigns well-defined polynomials to planar 3-valent graphs. We also show that our construction provides a representation of the braid groups into a certain algebra given by generators and relations.

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ISOLATING AND IDENTIFYING BACILLUS SPECIES

Over the past several decades there has been an increased public and private sector demand for more environmentally sustainable food production. Central to this is the need for reduced use of dewormers, drugs and antibiotics in animal production. As such, farmers are turning to naturally occurring species and nutrients to encourage and maintain healthy livestock. Several Bacillus species including Bacillus subtilis, Bacillis licheniformis, Bacillus pumilis, and Bacillus lentus, have been approved for use in livestock feeds. These species may be used as probiotics intended to colonize the digestive tract and help provide protection against parasites and other health conditions1. Bacillus species occur naturally in the soil and can be isolated and enriched using a number of laboratory methods. In this research project, we sought to identify Bacillus species found in Fresno, California soils for future use in livestock rations. Following isolation, the Bacillus species were identified by standard lab tests and by molecular means, such as amplification and sequencing of 16S ribosomal DNA. We present results on the identification of several Bacillus species identified from soil.

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THE ROLE OF METHYL FARNESOATE AS A REPRODUCTIVE REGULATOR IN THE TADPOLE SHRIMP, *Triops Longicaudatus*

In crustaceans, evidence is accumulating that the precursor to the Juvenile Hormone III (JH III), Methyl Farnesoate (MF), regulates reproduction and development (Laufer et al., 1987; Laufer and Biggers, 2001; Borst et al., 2001). In tadpole shrimps, *Triops longicaudatus*, MF is a native hormone and appears to suppress and delay ovary development in 5-day old juveniles (Tsukimura et al., 2006). This study aims to expand on that study by investigating the amount of cyst produced daily, and in total, during one life cycle of the organism, under dietary MF treatment. Furthermore, we hatched the collected cysts in order to determine the viability of the eggs produced by MF-treated individuals in order to see if future generations are affected.

Cyst-containing soil was collected from a rice farm in Richvale, CA in the Fall of 2008. The cysts were hatched in glass bowls. Six day old animals were isolated in individual containers for easier monitoring, feeding, and cyst collection. Individuals were separated into two dietary groups: a control lacking MF and a treatment group subjected to a concentration of 6 ppm MF pellets. Cysts from all individuals were collected and counted daily. In order to enhance the hatch rate, prior to hatching, the cysts were desiccated and frozen. Cyst viability was measured by the percentage of hatching.

MF decreased cyst production in individuals that survive beyond 5 days of oviposition. The control group had 92.4±4.9 SEM cysts/day, whereas MF-treated animals had only 79.2±4.5 SEM cysts/day (p=0.03). Similarly, the total cyst production was 866.4±72.1 SEM cysts for control compared to 658.4±51.3 SEM cysts for MF treatment (p=0.01). The number of days of oviposition was also reduced, control animals had 9.2±0.5 SEM days of oviposition compared 8.1±0.3 SEM in MF-treated animals (p=0.04).

Cyst hatching was performed using two types of containers, glass vials and plastic cups. We hatched cysts collected from control and MF-treated animals, and as an added control, cysts that were manually recovered from field soil. In glass vials, controls hatched at an average rate of 24.6% and MF-treated at 26.2%. In plastic cups, control cysts had an average hatch rate of 29.3%, whereas the cysts from MF-treated animals hatched at a rate of 24.7%. Field soil cysts hatched in vials had an average hatch rate of 36.2%, whereas in cups it averaged at 33%. There was no difference in hatch rate between the cysts from control and treatment.

Previous studies suggest that MF is a regulatory hormone in juveniles and our results further supports this conclusion. Elevated levels of MF caused a delayed in the gonadal development of the tadpole shrimps, resulting in a cascading effect of decreasing oocytes count, cyst production, and the number of days of oviposition. However, MF did not have an effect on the resulting offspring's ability to hatch.

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TIMEKEEPING MECHANISM OF A CYANOBACTERIA CIRCADIAN OSCILLATOR

Protein based circadian oscillators generate a 24-hour rhythm in diverse organisms. These important timekeepers orchestrate metabolism, cell division and undergo a succession of phases, each phase necessarily inducing the next one. Thus, understanding a circadian oscillator amounts to understanding the mechanism of each phase, and how the transition occurs.
The system best suited for mechanistic studies is the circadian oscillator of cyanobacteria: a simple mixture of clock proteins KaiA, KaiB, and KaiC, and ATP generates a self-sustained ~24 h rhythm of KaiC phosphorylation. There are three phases to this oscillator: in Phosphorylation Phase, KaiA stimulates autophosphorylation of KaiC; next, in Transition Phase, KaiB forms a stable complex with hyperphosphorylated KaiC; and finally, in Dephosphorylation Phase, KaiC autodephosphorylates in a KaiABC complex. The mechanisms driving each phase are unknown. Thus, our goal here is to elucidate the transient, time-dependent interactions and motions that are central to the function of this oscillator.
Our central hypothesis is that rhythmic control of KaiC dynamics underpins the timing mechanism of the circadian oscillator of cyanobacteria. This hypothesis is formulated on our preliminary data from Nuclear Magnetic Resonance (NMR) Spectroscopy and Gel Filtration Chromatography. For the mechanism of Phosphorylation Phase, our results show KaiA stabilizes a state of KaiC that is highly dynamic, which we propose is critical to the autokinase activity of KaiC. Autophosphorylation of residue S431 quenches KaiC dynamics, which we propose, is essential for promoting the formation of a KaiB-KaiC complex that is critical to Transition Phase. Finally, during Dephosphorylation Phase, KaiA is bound by its interdomain linker to a new binding site formed by the KaiB:KaiC complex, and we propose that this KaiABC complex prevents KaiA from increasing KaiC mobility required for autokinase activity. Our work has revealed the mechanism of the circadian oscillator of cyanobacteria.

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HORMONAL REGULATION OF FOOD INTAKE DURING ACUTE STRESS IN THE TILAPIA, OREOCHROMIS MOSSAMBICUS

Fish encounter a number of environmental stressors, including variable water quality, temperature, and food availability. The stress response that ensues is orchestrated by the sympathetic nervous system as well the hypothalamic-pituitary-interrenal (HPI) axis, principally resulting in the release of cortisol. These two mechanisms share the overall effect of mobilizing metabolic energy and redirecting it towards homeostatic maintenance. Consequently, an important factor altered by stress in fish is reduced food intake. We have previously shown reduced food intake in response to an acute stress in tilapia. However, whether cortisol is mediating these effects is unknown. Therefore, the current study investigates the effects of metyrapone, a cortisol synthesis inhibitor, on food intake during an acute stress. Metyrapone was administered via feed in three experimental groups receiving doses of 10, 25, and 50mg/kg body weight for 1 wk prior to a 30 min crowding and handling stress. Following the stressor, fish were allowed to feed for 1 h. Stress significantly ($P < 0.01$) reduced food intake, while elevating mRNA levels of corticotropin-releasing hormone (CRH; $P < 0.001$), the initiator of the stress axis. Additionally, metyrapone treatment dose-dependently blocked the stress-induced reduction in food intake, with the 25 and 50 mg/kg doses significantly ($P < 0.05$ and 0.001, respectively) reversing the effect of stress on food intake. The elevation of CRH mRNA levels was also reversed in all metyrapone treatments, suggesting that cortisol and CRH play a role in mediating the observed reduction in food intake during stress in tilapia.

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EMISSIONS MEASUREMENTS OF VOLATILE ORGANIC COMPOUNDS FROM A SAN JOAQUIN VALLEY DAIRY

Volatile organic compounds (VOCs) are pollutants that react with nitrogen oxides in the presence of sunlight to form smog. Since dairies are believed to be a major source of VOCs in the San Joaquin Valley, accurate emissions measurements from these facilities are important. Previous studies of dairy emissions have used flux chambers, but extrapolation of these data to the 'true' flux is difficult because the chamber perturbs the temperature, air flow and humidity of the source, which in turn affects the emissions. The goal of this work is to develop an alternative approach to measure more accurate VOC fluxes from dairy facilities.

In this work, samples were collected immediately downwind of the Fresno State dairy during July 2010. Air was drawn into evacuated 6 L stainless steel canisters at seven heights ranging from ground level up to 50 m using a 10 m tower and a tethersonde. Air samples were analyze using gas chromatography-mass spectrometry to measure the concentrations of approximately 100 VOCs.

Up to 70 individual VOCs were identified in the samples collected at concentrations as high as 10 parts per billion (ppb). Maximum concentrations of alkanes and aromatics were generally observed at heights of 20 m or less, suggesting a strong local source, Ground level maximum VOC concentrations were often observed in the early evening (6-8 pm). A steady-state plume model (AERMOD) was used to simulate emissions from the dairy to determine the flux of the observed VOCs and the origin of the ground level peak in VOC concentrations. The results and implications of these calculations will be discussed.

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DETECTING W AND Z BOSONS AT THE ATLAS EXPERIMENT OF THE LARGE HADRON COLLIDER AT CERN

The European Organization for Nuclear Research (CERN) is one of the most respected laboratories for scientific research, being the birth place of two Nobel Prizes and the World Wide Web. CERN's newest $10 billion project, the Large Hadron Collider (LHC), is one of the most ambitious scientific projects in human history, with the huge potential for discovery of new physics beyond the current known physics framework. ATLAS (A Toroidal LHC Apparatus) is one of two leading LHC experiments designed to search for new physics. ATLAS consists of nearly 3,000 physicists from almost 200 institutions of 37 countries. The California State University of Fresno is the only CSU campus on the ATLAS experiment.

The 1984 Physics Nobel Prize was awarded for the discovery of the W and Z bosons at CERN. These elementary particles mediate the weak interaction. The study of W and Z bosons at the LHC are essential to calibrate the ATLAS experiment before we can search and discover new physics at the LHC. This research tests the calibration of ATLAS detectors by observing W and Z bosons.

The detection of W and Z bosons rely on our ability to accurately reconstruct the energy deposited by charged and neutral particles through ATLAS detectors. The energy reconstruction analysis method we developed applies specific cuts (or filters) to all particle collision events in the ATLAS experiment. Cuts exclude all particles that do not represent the physical properties of the W and Z boson. Only particles exhibiting W and Z boson characteristics can now be observed.

Through the developed energy reconstruction analysis, we report the first indication of W and Z bosons from first ATLAS data that agree with CERN's predictions. This data confirms that the ATLAS detectors are able to identify known particles to high certainty. Our method of reconstruction is valid for authenticating current physics, allowing for discovery of new physics.

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SCREENING OF METHODS FOR REMOVING GEOSMIN AT A MUNICIPAL WATER PLANT IN CALIFORNIA'S CENTRAL VALLEY

The feasibility of implementing a treatment strategy for controlling a seasonal earthy taste and odor (T&O) at a 15 MGD membrane-filtration surface water treatment plant was investigated. The T&O problem appeared each fall since the Plant was commissioned and is believed to be caused primarily by the algal metabolite geosmin. Eleven potentially effective forms of treatment were identified in the literature and, after further analysis, five of them were found to have the greatest potential for removing geosmin as follows: Granular and powdered activated carbon (GAC and PAC), ozone (O3), ozone with hydrogen peroxide (O3/H2O2), and ultraviolet light with hydrogen peroxide (UV light/ H2O2).

Performance capabilities of the five remaining options were further investigated via bench- and limited full-scale studies and consultation with industry. Results indicated that all five methods could remove a significant fraction of geosmin; however, PAC treatment was found to be not economically and/or operationally feasible for the Plant at this stage of the evaluation.

Preliminary process design parameters were identified and economic and non-economic analyses conducted on the remaining four options. In the final analysis the most feasible treatment options for reducing geosmin levels at the Plant were determined to be the two advanced oxidation processes, O3/H2O2 and UV light/H2O2, and possibly ozone alone. GAC treatment was ruled-out early based on high cost, complexities related to the provision of flow to the units each November when the Plant shuts down for canal maintenance, and its large size and poor aesthetics.

Determination of the single most feasible treatment option for the Plant will require additional laboratory testing of water samples from the Plant by one or more leading manufacturers of UV light/ H2O2 technology, and pilot-scale testing of a side stream at the Plant by one or more leading manufacturers of the O3 and O3/H2O2 technology.

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ON MULTIPLIER SEQUENCES FOR SIMPLE SETS OF POLYNOMIALS

A sequence of real numbers is called a multiplier sequence if it transforms any polynomial with only real roots into another polynomial with only real roots. Being a multiplier sequence depends on the basis chosen for the polynomials. Some bases yield more multiplier sequences than others. We present two results on multiplier sequences. The first result allows us to determine which bases yield the most multiplier sequences. The second result tells us which sequences are multiplier sequences for any basis.

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READING A MYTH IN THE PASSING OF A HMONG LEADER

When in January 6, 2011, Vang Pao, known as the main leader of the Hmong Diaspora, and a general of the former Royal Army in Laos, passed away, suddenly, the myth of a "Land, a King and a Writing System", --otherwise a nationalist myth seems becoming alive, visible and moving through the Hmong imaginary, giving the sense of cohesion to the group. Indeed, it has been haunting memory of the group in exile, commanding their socio-political actions, and defining their identity.

Based on this unique event, the objective of this study is to question this myth inherent to the Hmong ideals and dreams of a Nation-State, and through it, to examine the socio-political and religious structures of the Hmong contemporary society, and its leadership.

For this study, Hmong, Laotian, English, and French Media (television, radio and newspapers) in addition to observation and academic literature has been used to capture the myth in motion in the Hmong American community. These data offers personal as well as collective opinions on the passing of General Vang Pao, and his funerals.

The myth of "a Land, a King, and a Writing System" always inhabits the Hmong socio-political imaginary. But, its passing from dream to reality seems taking place only when the leader of the group dies. The Hmong society known as an egalitarian, even patriarchal, remains as is in its socio-political structures, before, and after the passing of the leader. Immerged in the American society, the Hmong community has integrated new social unities with specific functions, political and religious. Traditional socio-political divisions still prevail such as the clan with their specific leadership. The paradox pertaining to the happening of his myth remains in fact the motor of change, and of dream for a stateless ethnic group.

POSTER PRESENTATION ABSTRACTS

(IN NUMERICAL ORDER BY POSTER BOARD NUMBER)

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THE SOCIOLINGUISTIC NETWORK: TRACKING GENERATIONAL CHANGE IN SOCIOLINGUISTIC PREFERENCES WITH SOCIAL NETWORKING

It is well known and widely accepted that a speaker's accent affects people's perception of them. This paper explores how accents affect people's perceptions of 4 speakers (American Male, British Male, East Indian Male, American Female) in 5 different character traits (intelligence, employability, befriending, friendliness, and sincerity) for a variety of audience demographics.

Samples of the 4 different speakers were posted on Youtube and Facebook, and a large amount of data was collected through the online surveys. Because the survey was conducted primarily on the internet, a majority of the participants were 17-25.

Overall, the American Female was rated highest in employability, befriending, friendliness, and sincerity, while the British male was rated highest in intelligence. Notably, there was a marked difference in the older people's responses to the speakers. The older group rated the American male higher in employability and sincerity, and the Indian Male higher in friendliness, conforming to our expectations. However, there was an unexpected shift in perception from the older generation to the younger generation, who preferred the American woman in all categories except intelligence, which they attributed to the British man.

While these results are perhaps not surprising, they were arrived at through innovative techniques of data gathering using technology and social networking, yielding a large amount of participation with relatively little effort. Former scholarship primarily reflects the opinions of the older generation. Novel data gathering techniques such as those utilized in this paper represent a new and previously untapped method of obtaining information from the younger generation, one which could potentially be used to collect data from a wide and varied demographic.

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VINTAGE COSTUME COLLECTION: SAVING OUR HISTORY FOR TOMORROW

Presentation will be on data regarding the preservation and documentation of the Theatre Arts Vintage Costume Collection.

In this project, we as students get to further our study of the history of clothing by actually working with the Theatre Arts vintage collection of garments. There are over 3000 items in this collection. Our job is to photograph, digitize, measure, and date these garments so that Clothing scholars from all over the world can have access to our collection. As we work our way through this collection, we are also learning and implementing methods of conservation and preservation. These are the purposes of our study:

• Gain knowledge about clothing construction
• Create an online resource cataloguing the information on the techniques and materials used to create clothing
• Accurately date the garments using primary resources such as photographs, publications, inventories, etc.
• Analyze the construction of the garments to determine historical methods of original construction and refurbishing garments
• Create and maintain a resource publication that can be made easily available as a tool to other universities and historical societies in the immediate area and nationwide
• Create an effective method of archiving that conforms to the Visual Resource Association core standards (Core 4.0)
• Design and create a website to provide public access to the collection in a digital format

Results: We will present our work cataloging the collection and creating our blog. This will include methods of displaying the garments for historical/educational purposes. We will also discuss the feedback we have received about the project from the community.
The Blog:
http://csufresnovintagecollection.blog.com/

Conclusion:
This process has garnered us experience in historical preservation, a greater knowledge of research methodology, and a greater appreciation of the people that have lived in the Central Valley. We have their clothes which helps us understand who they were and how they lived.

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THE 12 UNTOLD STORIES

The 12 Untold Stories is an oral history project, focusing specifically on the life stories of the 12 defendants in the recently dismissed federal terrorism case in the state of California. The objectives of the study are to find out the past histories of these 12 men, including their involvement in the Vietnam War, and further to understand how their community involvement and leadership positions in the Hmong community in California may have resulted in their selection for prosecution.

The methods used will be to individually interview each man and then to translate and transcribe the information into paper form. Each interviewee will be asked the same demographic questions but will also be asked open-ended questions in an effort to solicit thorough dialogue. Research will also be conducted through the National Archives in Washington D.C. for uncensored documents pertaining to the Vietnam War, as well as reviewing available court information.

We have gathered information about the community involvement of these individuals in the California Hmong communities. Since coming to the United States as refugees, these men have positively contributed to the well-being of the Hmong people, and thus have become leaders despite their limited military statue.

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THE EFFECT OF DEPESSION SCREENING DAYS ON STUDENTS ATTITUDES TOWARD DEPRESSION WHEN THEY MISS THE EVENT

The amount of severe mental illnesses on college campuses has increased over the last ten years Cases of depression in college students need to be diagnosed early to prevent severe cases. It is necessary to diagnose depression early to prevent suicide risks and lower quality of life in the individual. Many individuals may not seek treatment for depression in order to avoid the stigma associated with mental illnesses.

Previous studies have that community interventions on depression help improve the attitudes on depression in a community. We hypothesized that depression-screening events on campus are likely to benefit both those students who actually attend the event and students who hear about the event via fliers and announcements about the event. We tested this hypothesis by examining the attitudes and knowledge of depression of Introductory Psychology students both before and after a campus depression screening day event. The vast majority of these students did not attend the screening event. However, they did report an increased positive response to a question on whether they would seek counseling when dealing with emotional or stress related problems. In preliminary analyses of the data, an independent-samples t test comparing the mean scores of pre-test and post-test found a significant difference in the means between the two groups ($t(879(= -4.952$, $p < .05$). The mean of the post-test group was significantly higher ($m=5.31$, $sd=1.95$) than the mean of the pre-test group ($m=4.63$, $sd= 2.10$). Other variables regarding attitudes toward treatment and depression will be reported.

Preliminary analysis of the data shows that college studentâ€™s attitudes toward mental health centers and seeking mental health treatment improved after the event, even if they did not attend the event.

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AN EVALUATION OF INCREASED CHOICE OPPORTUNITIES DURING LESS PREFERRED ACTIVITIES FOR CHILDREN WITH AUTISM

Control is an important aspect of an individual's life which is determined by the freedom of choice. Previous research indicates the importance and beneficial outcomes of establishing choice within an individual's development. The presence of choice has been shown to increase quality of life, improve mental and physical health, decrease disruptive behavior, and increase on-task behavior. Despite this research, most areas in our community our devoid of choice including many early intervention programs for children with Autism. Because children with Autism often possess language deficits they are not capable of asking for choice and this can often result in problem behavior not conducive to therapy. This study aims to determine the benefits of choice in a population unique to this topic, children living with a diagnosis of an Autism Spectrum Disorder. We have collected data on nine male students and one female student ranging from ages 2 to 12 years old from the Central California Autism Center located on the campus of California State University, Fresno. Through an ABA reversal design both choice and no-choice conditions were offered to the children during the presentation of various preferred activities. Research indicates that the choice condition increases on task-behavior and decreases problem behavior. Our research correlates with previous findings, and withstands throughout the presentation of less preferred activities.

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THE MODALITY AND INTERVALLIC RELATIONSHIPS IN AGREEABLE AND DISAGREEABLE DYADIC CONVERSATION

In terms of Western music, the consonance or dissonance of a pair of notes refers to how pleasant or unpleasant the combined tones sound to the ear. Different intervals can also elicit different emotions, such as happiness or sadness, depending on the level of dissonance of the interval. Previous research has found that the musical intervals found in the intonation contours of everyday speech are associated with various emotions. Because it is also known that people engaged in conversation tend to synchronize their actions rhythmically (e.g., head nods, pacing, and speech tempo), it may also be the case that speakers synchronize their pitches while speaking to each other. Exploratory investigations have indicated that, in an agreeable dyadic exchange, the last pitch one member of the dyad speaks, and the first pitch the other speaks, are related by a consonant interval; in a disagreeable conversation, the two pitches are related by a dissonant interval. In the present study, we will test another possible source of pitch synchrony in speech: whether the tonic of each speech segment is consonant or dissonant with the dyadâ€™s tonic.

In our task, two participants were given their own map, and one was asked to give route directions to the other. The sets of maps either contained different landmarks in altered places or were exactly the same. With matching maps, participants were provoked into an agreeable conversation, and with conflicting maps, participants were provoked into a disagreeable conversation. In this way, natural conversational speech samples were recorded. It was hypothesized that pitch synchrony would occur; that is, that the agreeable conversations would elicit consonant intervals between the tonics of the participantsâ€™ speech, and that the disagreeable conversations would elicit dissonant intervals. Acoustic analyses of the pitch contours uttered by participants were conducted to evaluate the musical intervals elicited in these conversations. The results showed interesting patterns of musical pitch relations within conversational dyads.

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EVALUATING iPAD TECHNOLOGY FOR IMPROVING COMMUNICATION INITIATION FOR CHILDREN WITH AUTISM

Communicative abnormalities are common symptoms found in individuals who have autism spectrum disorders. Many children with autism fail to develop functional speech. This study addressed the augmentative and alternative communication (AAC) needs of children who have a diagnosis on the autism spectrum and who possess deficits in communicative behaviors. The effects of Proloquo2Go on the Apple iPad were evaluated in relation to the requesting skills of the participants. Proloquo2Go is an AAC system that utilizes symbols, visual supports, and a voice output component. Participants were taught to utilize the system in order to initiate for preferred items during playtime; naturalistic teaching strategies were used in order to encourage initiations. In addition, participants were taught a skill allowing the child to respond expressively using the iPad. Typical discrete trial teaching was performed with the children; prompts and reinforcers were used as necessary. The study utilized a multiple probe baseline and alternating treatments design across participants. All participants are clients at a university center-based autism program. Preliminary results demonstrate the functionality of the iPad as an AAC device.

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ANALYZING VARIOUS METHODS OF IMMEDIATE FEEDBACK USING CLICKER RESPONSE SYSTEM

This study analyzed different immediate feedback methods with clicker response systems. Previous research has shown response systems help students actively engage during lectures. While research shows active learning and participation is superior to standard lectures, there is a lack of research in the various methods available using the response systems. This study compared two immediate feedback methods, discrete grouped feedback (histogram) and individually identified feedback (spreadsheet) techniques, with a third no feedback group (control group) using the clicker response system. Our primary hypothesis suggested an increase in scores using the response system during immediate feedback techniques. We also hypothesized greater scores using individually identified techniques compared to grouped feedback. Participants were randomly assigned to a group feedback voting lecture, identified response technique lecture, or the control group. Each participant read four passages. After reading a passage for three minutes, six questions were answered using the clicker response system. We had a total of ninety-five participants. Our study was a between subjects design. We found a significant difference in scores between individually identified subjects (M= 3.26, SD= 0.15) and no feedback (M= 2.80, SD= 0.14) condition. Findings suggest identifiable immediate feedback from response systems is the optimal method for active engagement.

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PROGRAMMING FOR GENERALIZATION OF PERSPECTIVE-TAKING ABILITIES USING DEICTIC RELATIONAL RESPONDING IN CHILDREN WITH AUTISM

The development of perspective-taking has attracted interest from educators and psychologists due in part to its role in developmental disabilities such as autism. The current study is using a behavior analytic approach to train perspective-taking skills using a perspective-taking protocol. In addition, the training has also incorporated a multiple exemplar design in attempt to program for generalization of the skills. In doing so, children will acquire the skills by introducing one question and perspective at a time. As acquisition of the material furthers, questions and perspectives being taught will increase in level of difficulty. It is believed that through the use of the selected protocol and training design that participants will acquire both the perspective taking skills and the ability to generalize these skills to novel settings.

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THE ROLE OF NON-MUSCLE MYOSIN II IN EARLY CLEAVAGE DEVELOPMENT AND GASTRULATION OF THE CNIDARIAN NEMATOSTELLA VECTENSIS

Interactions between actin filaments and non-muscle myosin II are required for the formation of contractile machinery within the cell, necessary for the cell divisions and shape changes that drive morphogenesis during early development. In this study, we have chosen to investigate the changing role of non-muscle myosin II during development in the cnidarian Nematostella vectensis. Cnidarians are thought to be the sister taxon to bilaterians, therefore, understanding the molecular mechanisms underlying morphogenesis within this branch promises to provide insight into the evolutionary history of this process. We have utilized fluorescence microscopy to visualize actin and myosin dynamics during early development in Nematostella. During cleavage, actin is found to be located throughout the cortex of the cell while new filaments are assembled parallel to the cleavage site. Non-muscle myosin II, which becomes activated via phosphorylation of the regulatory light chain by the Rho-activated kinase ROCK, is localized only to the site of cleavage. Once activated, non-muscle myosin II acts as the molecular motor responsible for providing the force necessary to pull the actin filaments past one another, resulting in the formation of the cleavage furrow, and ultimately the complete separation of the daughter cells. At the blastula stage of development we found that the activated myosin II was localized to the basal surface of the ectoderm, giving rise to the slightly wedge shaped cells that make up the hollow sphere. In the later stage of gastrulation, this pattern continued with the additional localization of myosin II to the apical surface the developing endoderm, where it is likely involved in the apical constriction of endodermal cells and the initiation of gastrulation via invagination. It may be the case that these sites of localization are needed to retain the spherical shape while combating the mechanical forces applied by cell migration during gastrulation.

In the future we plan to extend our studies to the molecular mechanisms leading up to its activation and localization during different stages of development [This study was partially supported by the CSU-LSAMP program funded by NSF under grant #HRD-0802628-515291 and the Science Undergraduate/Graduate Research Experience Program (SUGREP) initiative provided by the College of Science and Mathematics at California State University, Fresno, Fresno, CA 93740].

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SUB-MILLISECOND KINEMATICS OF BLADDERWORT, THE FASTEST KNOWN SUCTION FEEDER

Bladderwort, Utricularia, is a genus of 220 carnivorous plant species that capture zooplankton in underwater bladders. These modified leaf structures, which are highly specialized for suction feeding, have been the subject of bio-mechanical speculation since Darwin. However, their small size (1-2 mm) and fast action (1 ms) have obscured the underlying functional kinematics. We have used high-speed digital video to study two aquatic species, Utricularia vulgaris and gibba, at frame rates up to 11,000 per second. To observe capture events with reasonable frequency we have (1) cultivated both species locally, (2) built a macro-photography stage with sufficient illumination, and (3) harvested and concentrated large numbers of suitable prey. With these dense infusions, a natural trapping event can be observed within 15 minutes. We have measured fluid speeds up to 4 m/s, and prey accelerated to 0.8 m/s, possibly the fastest documented for any suction feeder. Because suction is initiated by mechanical collapse of a trap door, prey are necessarily near the mouth of the bladder when they trigger it. Nevertheless, they can escape if they are simply too wide for the entrance, adhered to the margin, or not deep enough into the volume of water that is ultimately aspired. Thus our growing collection of recordings reveals general differences between successful and unsuccessful capture events, and could identify specific adaptations for trapping and evasion.

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ALTERATION OF CAVEOLIN EXPRESSION IN DIFFERING INTEGRIN BACKGROUNDS: IMPLICATIONS FOR TUMOR CELL MOTILITY

Defining tumor suppressors and oncogenes is fundamental to cancer. Both integrins and caveolins have known roles as tumor biomarkers both at early and late-stage disease. However, previous data has shown that depending on tumor origin, caveolin-1 can function either as a tumor suppressor or as a tumor promoter, and while excess integrins are generally associated with cancer progression and angiogenesis, even some integrin knockout models have increased tumor burden. This dichotomy is problematic and compounded by data indicating that certain integrin subunits can bind to caveolins. There is clearly a complex interplay taking place that is most likely cell type-dependent. The long term goal of this project is to determine the role and mechanism of integrin subunit association with caveolin isoforms. We hypothesize that the mechanism of integrin endocytosis/recycling is dictated by the combination of integrin subunits present on the cell surface and the combination of interacting caveolin members and isoforms. Our project focuses on model cellular systems in which differential caveolin isoforms and β integrin subunits are overexpressed, knocked-down, or reciprocally affected that will have a profound effect on function such caveolae formation, vesicle recycling, adhesion and migration. Using a combination of RT-PCR, subcellular fractionation, immunoblotting, and proteomic workflows, our preliminary data indicate that different caveolin isoforms with respect to different β integrin subunit expression backgrounds have variable expression profiles. Our investigations of caveolin and integrins will provide a further understanding for molecular interactions associated with cancer cell motility with the hope of developing inhibitory or stimulatory mechanisms for therapeutic benefit.

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cGMP PRODUCTION IN ESCHERICHIA COLI

The cAMP receptor protein (CRP) is a global transcription factor regulating more than 100 genes in Escherichia coli. There are currently more than 4,000 CRP-like proteins, termed CRP homologs, based on their sequence similarity to CRP. So far, many CRP homologs including CRP have been identified to utilize cAMP as their ligand. However, a few CRP homologs have been implicated in sensing cGMP, the molecule which had never been appreciated as a signaling molecule in this family of proteins. The long-term goal of this project is (i) to systematically identify CRP homologs that respond to cGMP and (ii) to elucidate any distinctive sequence feature(s) common to the CRP homologs for cGMP responsiveness. This requires a reliable assay system of monitoring cGMP responsiveness. Our initial task is to alter E. coli to make cGMP intracellularly, since E. coli normally does not produce cGMP. In order to achieve this goal, we cloned the cya2 gene of Synechocysitis PCC6803, the gene product of which had been known to synthesize cGMP, into an expression plasmid. Then, we tested if the E. coli would produce cGMP by introducing a cGMP-responsive CRP variant and by looking at the functional impact on that CRP variant. The presence of the CRP variant however did not show any cGMP-dependent activity, suggesting (i) that either the constructed E. coli strain does not produce cGMP or (ii) that the cloned gene product synthesizes cGMP, but its degradation rate is faster than its production rate in E. coli. To differentiate these two possibilities, we are currently planning on introducing the cloned plasmid into an E. coli strain lacking phosphodiesterase(s). Since phosphodiesteras(s) break down cGMP, an increase in cGMP production in a phospodiesterase-lacking strain background would indicate that the latter was the case. The construction of an assay system monitoring cGMP responsiveness paves the way for elucidating cGMP role in CRP homologs and further in bacteria.

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Poster Board No. 14

CARBON, NITROGEN AND GROWTH: A COMPARISON OF PHYSIOLOGICAL CHARACTERISTICS OF NATIVE AND INVASIVE PLANT SPECIES

Retired farmlands in California are highly susceptible to invasive plant species, even when seeded with native plants. In this 11 week greenhouse evaluation, we compared characteristics of the native grasses Hordeum depressum (HODE) and Vulpia microstachys (VUMI) and the invasive grass Bromus madritensis (BRMA). Species were compared in biomass accumulation and allocation patterns, in vivo nitrate reductase activity (NRA, a critical enzyme in nitrate assimilation) and photosynthetic rate measured using a portable gas exchange system (LiCor LI-6400).

Over the growth period, total biomass of VUMI (~0.7 gDW) was approximately double that of HODE (~0.24 gDW) and BRMA (~0.25 gDW). VUMI leaf biomass accounted for ~80% of total biomass, whereas in HODE and BRMA leaf biomass was ~34% and 47% of total biomass, respectively. No significant differences in root biomass were observed among species. Differences in biomass allocation resulted in significantly different (≤; 0.000) root-to-shoot (R/S) biomass ratios: VUMI=0.24±0.02; HODE=1.91±0.12; and BRMA=1.18±0.17. All species exhibited similar rates of photosynthetic carbon gain (~5 □;molm-2s-1). However, BRMA exhibited ~60% greater stomatal conductance (≤;0.020) and transpiration rate (≤;0.000) than native species (VUMI and HODE) indicating a lower water use efficiency in the invasive. Root NRA did not differ among species, whereas, leaf NRA of natives VUMI and HODE exceeded that in BRMA (≤;0.05) by ~100% and 1200%, respectively.

Competition for limited soil resources is critical for plant survival in the seasonally dry soils of California's Central Valley. The greater biomass and leaf NRA of VUMI suggests potential to compete for nitrogen with invasive BRMA, but this may be constrained by a low R/S ratio and possible susceptibility to early season drought. In contrast, HODE, may compete more effectively with BRMA due to a combination of a greater R/S ratio, greater rate of leaf NRA and a lower rate of transpiration.

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Poster Session I
Poster Board No. 15

THE EFFECTS OF MANGANESE TOXICITY ON MOTOR ACTIVITY IN DROSOPHILA MELANOGASTER

The effects of manganese toxicity were first observed over 150 years ago among workers producing bleaching powder. These workers exhibited Parkinsonian-like symptoms, including tremors, an awkward gait, memory loss and loss of balance. It is now known that this is a result of dopaminergic neuron toxicity. Here we present the result of our investigations into using the fruit fly Drosophila melanogaster as a model organism to study manganese neurotoxicity and its relation to Parkinson's disease.

A total of 80 flies were collected and separated by gender, resulting in two sets: one consisting of 40 females and one of 40 males. Food pellets were prepared containing glucose, sucrose, magnesium and calcium salts, yeast, and agar. The pellets contained manganese chloride at 0, 5, 50, and 100mM concentrations. Each set of male and female flies were divided in to groups of 10 flies that were exposed to one of the four varying manganese concentrations. We subjected these flies to a simple geotactic motor assay to test their ability to climb the side of a glass vial. This test was conducted in 30 second trials three times a day for ten consecutive days and the viability and motor skill were recorded daily. Reduced motor activity and viability were observed in female flies that were fed food containing manganese chloride at 5, 50 and 100 mM concentrations. Results from male flies indicated reduced viability, but the motor assay results were inconclusive. The reduced motor activity correlates with increasing manganese concentration.

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Poster Board No. 16

MORPHOLOGICAL VARIATION IN HAIR MORPHOLOGY FROM MAMMALS OF THE ORDER OF ARTIODACTYLA

Artiodactyla is an extremely large and diverse order that contains approximately 220 species that collectively displays an incredible array of morphological variation in hair characteristics. Owing to this, the microscopic examination of guard hairs is paramount to the forensic identification wildlife. We have constructed a digital database of primary guard hairs from three different body regions, using bright field microscopy images to display the variation inherent in the hair of select Artiodactyls.

Animal specimens were obtained from the collections at the U.S Fish and Wildlife National Forensic Laboratory in Ashland, Oregon, and the Barry Gilcrease collection at California State Univeristy, Fresno. Hair was collected from each specimen by either plucking or cutting close to the base with a sterile razor blade. Hair was collected from three body regions: dorsal, ventral, and tip of tail. Approximately 25 hairs were collected from each body region of each individual, and placed in separate sterile sealable bags. Several hairs from each region were then plated onto individual glass microscope slides using mounting medium that closely matched the refractive index of hair. Each hair on each slide was examined and photographed to document the microscopic fields containing the most representative hair characteristics for the particular hair type and section under view. A transmitted light microscope coupled with a camera was used to acquire digital images of the basal, sub-shield and shield portions of the hair of each specimen at 400 X magnification. Macroscopic characteristics were recorded included hair color, form, and banding pattern. Microscopic observations, such as medullar, cuticular, and cortex characteristics, were then recorded.

Currently, the database contains over 73 species of the order Artiodactyla. Through the addition of relevant specimens and the ability to adapt to the changing needs of its user groups this digital database will remain extremely relevant.

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Poster Board No. 17

A NOVEL LENTICULAR WALKING ARENA TO QUANTIFY LOCOMOTORY COMPETENCE IN FRUIT FLIES

As toxicological screenings become widespread because of legislation requiring environmental impact studies and risk assessment to human health, Drosophila (fruit flies) have become the invertebrate model organism of choice. Drosophila are also an important model organism for mutational and genetic analysis. Screening assays have been developed to assess mortality, reproduction, or behavioral competence. In this study, we developed a new assay to assess locomotor competence. We developed a circular walking arena with a lenticular floor and a flat cover; the slope of the floor increases gradually from the center to the edge of the arena. The arena is 75 mm in diameter and 7 mm high. Drosophila are negatively geotactic – they climb as high as possible. We test whether our arena can detect subtle differences in walking ability by treating adult Drosophila with an environmental neurotoxin that is known to cause Parkinson's like symptoms in humans. This neurotoxin is a glutamate-agonist, which should cause insect muscles to contract involuntarily. We therefore expect this toxin to cause loss of fine motor control in fruit flies. We quantify the walking ability of 40 flies (10 control, 30 treated with three different doses) for 10 minutes per day over three consecutive days. We use custom-made software (Ctrax), student-developed MATLAB routines and manual behavioral scoring to track the flies in the arenas. Our experiments show that this arena design can detect differences in walking ability between control and treated flies when there are no obvious differences in walking ability visible to the naked eye. Our experiments show that both control and treated flies show strong negative geotaxis. Treated flies spent less time on the ceiling and more time nearer the lowest point in the arena. The effect of the toxin on climbing ability becomes more pronounced as dose and duration of treatment increase.

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Poster Board No. 18

THE DETERMINATION OF TADALAFIL IN RAT PLASMA BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY WITH UV DETECTION

Due to its long-lifespan and its ability to increase blood flow, tadalafil, a phosphodiesterase-5 inhibitor that is the active ingredient in the commercial drug Cialis®, has been found to heighten wound-healing properties in mice. The ultimate goal of this work is to test the hypothesis that tadalafil may improve flap healing in a rat model when administered orally. The objective of this project is to develop a method to measure tadalafil levels in the serum of rats to measure their exposure to the chemical.

Experiments were carried out with 50 μ;l of rat plasma. Samples were extracted with 0.5 ml of tert-butyl methyl ether following the addition of 20 μ;l of sodium hydroxide solution (1N). The extracted samples were evaporated to dryness and then reconstituted with 200 μ;l of acetonitrile. From this solution, 20 μ;l aliquots were analyzed via high performance liquid chromatography (HPLC) with ultraviolet (UV) absorption detection. Chromatographic separation was achieved with a mobile phase of acetonitrile–water containing 20 mM phosphate buffer (pH 7) (35/65, v/v) on a Sigma Aldrich ODS-2 Hypersil column at a flow rate of 1ml/min and using an absorption wavelength of 220 nm. The retention time was approximately 12 min for tadalafil, and no interfering peaks were observed in control plasma samples.

The detection limit for the method used was 13 ng/ml. Since the average tadalafil levels in the serum of exposed animals is 1.0 x 103 ng/ml, this method is suitable for investigating and monitoring tadalafil concentrations in exposed rats. This was demonstrated by analyzing tadalafil concentrations in the plasma of Sprague-Dawley rats that had been fed tadalafil in their food for three and ten days. The implications of these results will be discussed.

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Poster Board No. 19

SYNTHESIS AND STRUCTURAL STUDIES OF Bis(O-methyl-L-cysteinato)nickel(II)

Cysteine is a common amino acid and a biological ligand, meaning that it binds to metals in living systems. Bacteria can use nickel cysteine bonds to carry out a variety of biological functions such as hydrogen production and synthesis of the acetyl CoA enzyme; however in animals nickel has no known function and is toxic. As part of an effort to model sulfur-rich nickel sites in biological systems, we have synthesized bis(O-methyl-L-cysteinato)nickel(II), $Ni(cysM)_2$. Crystallographic data, which gives a "picture" of the solid state structure, will be presented for $Ni(cysM)_2$. The complex crystallizes with the sulfurs (S) oriented trans about the square planar nickel center; this configuration creates an alternating pattern of N (nitrogen), S, N, S atoms around the nickel (Ni) atom. Initially, this compound was fortuitously synthesized during attempts to crystallize the bis(O-ethyl-L-cysteinato)nickel(II) complex from a methanol solution. However, $Ni(cysM)_2$ can be directly synthesized by combining a toluene solution of bis(acetylacetonato)nickel(II) and a methanol solution of O-methyl-L-cysteine hydrochloride.

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EFFECTS OF L-GLUTAMIC MONOSODIUM HYDRATE ON DROSOPHILA LOCOMOTION AND VIABILITY

In this particular experiment, fresh stocks of Drosophila melanogaster male and female specimens, species Diptera, family Drosophilidae, were all subjected to normal subsistence on a standard cornmeal and yeast extract diet with varying concentrations of glutamate supplemented in the form of L-Glutamic acid, one of twenty natural proteinogenic acids. Glutamate, a common excitatory neurotransmitter, and endogenous chemical substance becomes toxic if present in high concentrations to facilitate neural cell death and the eventual progression of ALS or Lou Gehrig's in human. The experiment itself was designed to check for optimum organism viability and locomotion in response to Glutamic Acid supplementation.

Two biochemical assays were conducted to measure or quantify variations in fly survival rates and locomotion, both observed over a range of one and a half months as flies were subjected to various concentrations of Glutamic in the L isomeric form. From a stock culture maintained in standard dietary conditions, an average of 30 newly eclosed virgin male with newly eclosed virgin and non-virgin female flies were all collected and subjected to three separate concentration aliquot food preps of acid concentration ranging from 12.5mM to 50 mM. The control study included 10 virgin male with virgin and non-virgin female flies supplemented on the standard diet without the presence of Glutamic. Each subset of the flies were cultured and supplemented with the following concentrations of the acid in their diet: 0 mM (Control), 12.5 mM, 25mM, and 50 mM .

In analyzing the results of the survival assay data sets quantifying the viability of the flies with respect to Glutamic supplementation, it was observed that male virgin, female virgin, and female non-virgin fly subsets all lived the longest or optimally at a 12.5 mM supplemented dietary condition. At 50 mM all types of flies responded to the external stimuli by dying faster than normal in comparison to flies kept at 25mM dietary conditions. Locomotion as altered in response to the dietary conditions can also be summarized in the following way: flies inhabiting the 12.5mM supplement proved to be most effective in climbing the walls of the vials followed by those flies subjected to 25 and 50 mM concentrates, respectively.

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Poster Board No. 21

A LABORATORY INVESTIGATION OF THE REACTION OF ISOPRENE WITH NO3 RADICALS

Isoprene is a volatile organic compound (VOC) emitted into the atmosphere in huge quantities by plants and trees. Because of its large flux, isoprene's atmospheric chemistry has a major impact on the chemical composition of the lower atmosphere. The major chemical loss process for isoprene during the night is expected to be via reaction with nitrate (NO3) radicals. Recent studies also demonstrate that the reaction may be a significant source of secondary organic aerosols, which play an important role in climate change. However, the chemistry of this reaction is still poorly characterized. The goal of this study is to elucidate the mechanism of this reaction, and quantify the yields of the major reaction products.

As a first step in this work, a reaction scheme to generate a reliable source of NO3 radicals in the laboratory was developed. Experiments were carried out in a 142 L Teflon-lined smog chamber coupled to a Fourier Transform Infra-Red (FTIR) spectrometer. Mixtures containing a VOC (pentane or isoprene), nitrogen monoxide and synthetic air (nitrogen and oxygen) were introduced to the chamber. A mixture of ozone in oxygen was then generated by flowing pure oxygen over a low pressure mercury lamp, and the mixture was subsequently added to the chamber. Changes in the concentrations of reactants and products were monitored by FTIR. The concentrations of NO3 produced in the chamber were optimized by adjusting the concentrations of nitrogen monoxide and ozone in the reaction mixture.

Experiments performed with pentane demonstrated that the reaction generated over 5 x 10^13 molecules.cm-3 NO3 radicals within the chamber. Greater concentrations of isoprene reacted away under the same experimental conditions, indicating that some of the isoprene is reacting with ozone. However, examination of product IR spectra indicates that reaction with NO3 is significant in the chamber. The implications of these results will be discussed.

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SYNTHESIS, CHARACTERIZATION, AND GAS PHASE STUDY OF ISOPRENE NITRATES

Plants emit isoprene, a volatile organic compound (VOC) into the atmosphere in very large quantities. The released isoprene reacts with various other reactants present in the atmosphere, viz., hydroxyl radicals, ozone and nitrates potentially leading to the formation of secondary organic aerosol (SOA) that may impact both air quality and climate. The nighttime atmospheric chemistry involves nitrates as key primary reaction products and is poorly understood. The overall goal of this project is to gain insight into the atmospheric chemistry with an emphasis on the relatively unexplored isoprene nitrate chemistry.

In this presentation, we describe the multistep synthesis, purification and characterization of the isoprene nitrate 4-nitroxy-3-methyl-but-2-enal using standard wet organic chemistry protocols. The chemistry involves reactive intermediates including vinyl epoxides and their regioselective reactions with nucleophiles. Conjugate addition to the system is much more efficient than the direct addition at a ratio of 2:1. Oxidation of the isolated primary alcohols to their respective aldehydes is performed using Dess-Martin Periodinane. The authentic sample of the final nitrate will be investigated in gas phase kinetic and mechanistic studies.

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Poster Board No. 23

CONFORMATIONAL ANALYSIS OF ANALOGS OF DEET FOCUSING ON THE RESTRICTED ROTATION OF THE C-N BOND USING MOLECULAR MODELING AND VT NMR STUDY

Restricted amide C-N bond rotation has been known to scientists for years. Computer predictions and NMR experiments have also been performed to study this phenomenon. N,N-Diethyl-meta-toluamide, abbreviated DEET, is a light yellow oil and is the primary constituent of many insect repellants.

The multi-step synthesis of DEET is part of organic chemistry laboratory schedule for many undergraduate institutions. Classical chemical exchange effects on the spectra; line-broadening and coalescence of peaks in the region of restricted rotation in the 1H and 13C NMR spectra of DEET often surprise the students. Despite some NMR and computational studies done in this area, the vast student interest inspired us to take up a more comprehensive study of this phenomenon. We decided to perform the study involving the undergraduate students in the laboratory. The primary objective of the project was to gain understanding and perspective of an amideâ€™s restricted rotation with respect to the steric hindrance and electronic environment near and around the amide bond.The study also incorporates mechanistic predictions by computational analysis in conjunction withvariable-temperature (VT) NMR experiments.

The data provided by variety of NMR studies preformed helped re-enforced the idea that broadening occurs in 1H NMR when there is a restricted rotation. The differences in the steric hindrance also cause different effects upon the spectra.

Overall the restricted amide C-N bond rotation of DEET analogs all show effects of broadening on the 1H NMR spectra as was expected. A few different studies such as steric hindrance and variable-temperature NMR helped give a bigger picture of what occurs with C-N bond restriction.

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Poster Board No. 24

IDENTIFICATION OF VOCS FROM DAIRY EMISSIONS

In 2005, California implemented new air quality emissions regulations for the agricultural industry. Because dairies are thought to emit significant quantities of pollutants there have been significant efforts to identify and quantify of the compounds emitted from these facilities. Volatile organic compounds (VOC's) are emitted in significant quantities and are an integral component in the formation of smog in a region with already high ozone concentrationswhich are of great concern due to the potential health effects of exposure.

Air samples were collected in canisters at the Fresno State dairy and were analyzed using using gas chromatography-mass spectrometry (GC-MS). The signals from these samples were compared to those from a set of approximately 100 chemical standards in the commercially available PAMS and TO-15 standards. While approximately 70 of these standards were identified in the samples, many unidentified signals were observed. The goal of this work is to identify these chemical species to enable the potential impact of dairy emissions on smog formation to be more accurately assessed.

A literature review identified approximately 20 chemicals that are likely to be present in dairy emissions that could significantly impact ozone levels. Synthetic standards of these compounds were generated in Tedlar bags by introducing calibrated volumes of these species in a metered flow of air. The standards were then analyzed by GC-MS and the signals compared to those from the dairy samples. Several of these new species were found to be present in the dairy samples. The implications of these measurements for regional air quality will be discussed.

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Poster Board No. 25

NMR STUDIES OF Bis(O-ethyl-L-cysteinato)Nickel(II)

Nickel is believed to be able to replace beneficial zinc atoms in sulfur-rich proteins such as zinc fingers. This replacement of a zinc atom by a nickel atom is called transmetallation. It can lead to cancer, oxidative damage, and other health issues. We are investigating the solution state structure of the title compound, $Ni(cysE)_2$. The NiN_2S_2 center as well as the derivatized cysteine amino acid make this complex a suitable small molecule model for a nickel transmetallated zinc finger. ^{1}H-NMR spectra of $Ni(cysE)_2$ in d-methanol and d-DMSO show significant broadening. Magnetic susceptibility studies confirm that the broadening is not due to paramagnetic shifts since the complex is diamagnetic in both solution and solid state. Although using a higher field instrument, a 400 MHz NMR in comparison to a 200 MHz NMR, produced peaks that were more resolved; there is still significant line broadening. Two dimensional COSY ^{1}H-NMR studies reveal the connectivity so that the assignment of the proton signals to the correct structure can be made with efficiency. The difference in resolution in the peaks at 1.97 and 1.89 ppm, whereby the latter is broader, indicates that the two protons on the carbon adjacent to the thiolate sulfur are in different environments. This could be explained by one proton being closer to the nickel center or solvent interaction.

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Poster Board No. 26

NICKEL INDUCED OXYGEN DAMAGE OF BIOLOGICAL MOLECULES

Nickel is believed to be able to replace beneficial zinc atoms in sulfur-rich proteins such as zinc fingers. The replacement of a zinc atom by a nickel atom is called transmetallation. It can lead to cancer, oxidative damage, and other health issues. We are investigating oxidative damage of cysteine ethyl ester when it is bound to nickel, Ni(cysE)2. Two cysteine ethyl ester ligands bind to nickel through the N and S atoms.

When solutions of Ni(cysE)2 are exposed to molecular oxygen, O2, there are competing reactions that occur. The first reaction results in oxidation of the thiolate sulfurs to form a disulfide bond (-S-S-). This releases free Ni 2+ ions that bind two Ni(cysE)2 to form a trimetallic [Ni(Ni(cysE)2)] 2+. In addition, the oxygen can also add to the sulfurs of Ni to form sulfones and sulfoxides. Eventually oxidative damage results in the formation of elemental sulfur. Infrared spectroscopy, UV-Vis spectroscopy and X-ray crystallography data support our findings.

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SECOND LAW OPTIMIZATION OF A THERMAL FLAT PANEL SOLAR COLLECTOR

The thermal hydraulic behavior of a thermal flat panel solar collector is characterized in an effort to predict the irreversibilities associated with heat transfer losses, as well as fluid friction losses, these are two competing irreversibilities. The study is then optimized using numerical methods, to find the trade-off between the two in an effort to design a more efficient collector.

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MECHANIZATION OF CUT FLOWER HARVEST

California flower production is facing growing competition from outside sources. Outside sources are able to produce quality product at a cheap price. In order for California Cut Flowers to remain competitive we need to insure we are as efficient as possible. California growers need to evaluate every process used growing cut flowers. The growers need to streamline any process they can and mechanize a process if possible. My goal is to help the grower produce the highest quality flowers at the lowest possible cost.

The research involved a detailed review of cut flower harvest. Each step of the cut flower harvest was reviewed to create a time standard. The time standard gave areas of interest to address. An area of interest is then reviewed for the easiest way to increase productivity. The first option is streamlining a process. Mechanization is only used if there is a drastic savings available. Ultimately I designed a tool that will drastically reduce the labor required to harvest fresh cut flowers. I am still continuing research in the streamlining-mechanization process in cut flower production.

With the use of technology we can keep the California Flower Market profitable. Streamlining or mechanization of every process must be taken into account. We must keep efficiency high to remain competitive in world markets.

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Poster Board No. 2

ARCHITECTURE AND DESIGN OF SIMULATION PLATFORM FOR DCS

Design and Simulation play important role in design and testing. Simulation software is application programs run as graphic-like platform for the interactive design, programming and simulation of systems. Simulation technologies provide opportunity to the developer and system integrator to model, explore, and try out a variety of design strategies in order to advocate matured designs. This additional sub-layer of the management layer (ML) can improve the capability by reducing the time of the design process. Simulation platform is referred to as virtual environment that provides foundation for system development and be used to carry out design studies including conceptual design and evaluation prior to the real design. The virtual design environment can greatly improve reliability and availability and help to shorten the design-to-implementation cycle by enabling the users to correct errors and to identify optimized design parameters and requirements before they reach at the implementation stage. Simulation can provide insights into the designs of, for example, processes, architectures, properties, effects, before significant time and cost has been invested, and can be of great benefit. Utilizing simulation platform has many advantages, and there is great deal of validation, systemization, reliability and optimization. In this work, a simulation platform is designed in order to test and validate distributed control systems (DCS). Standard software packages for automation and control simulation are available in the market place. However, this proposal considers the problems taking into account of DCS concept in mind. During recent years, in the field of real-time instrumentation and process control, there has been trend away from centralized control system because of advent of digital and embedded technology systems (DETS). Distributed control by using DETS is the first step to application of processing power in the field devices.

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Poster Board No. 3

GEO-SPATIAL YIELD MONITORING TECHNOLOGY FOR MECHANIZED ALMOND HARVEST

Yield monitoring is critical for almond growers. Almond growers have been wasting their resources such as water and nutrients without knowing the texture of the soil, which is extremely important for understanding the yield. The main objective of this project is to monitor the yield of almonds based on the soil texture. The samples were collected from various soil zones showing different soil characters such as sandy, Loamy Sand and Sandy Loam from the almond farm of California State University, Fresno at Bullard and Willow. The almond samples collected were hulled, dried, shelled, weighed, categorized and bagged. The categories included the whole weight, meat weight, shell weight and hull weight. The ratio of meat weight and the whole weight gives the turnout, which determines the yield of the almonds. It was concluded that lighter soils have lower yield due to the bigger size of their particles and are unable to hold water. The heavier soils on the other hand have higher turnout due to the fine size of its particles and is able to hold water. It is therefore extremely important to understand the soil texture before irrigating the field because excessive watering won't help the sandy region due to its disability to hold water and the yield in any case will be less whereas excessive watering in heavy soil region may cause water clogging due to the clay nature of heavy soils and will lead to growth of mold causing the almonds to be damaged.

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Poster Board No. 4

USE OF SELENIUM-ENRICHED MUSTARD AND SOY SEED MEALS AS POTENTIAL BIOHERBICIDES AND GREEN FERTILIZER IN ORGANIC SPINACH AND BROCCOLI PRODUCTION

New plant-based products can be produced from seed harvested from Brassica species used for phytomanaging selenium (Se) in the west side of central California. Se-enriched seed meals produced from white mustard (Sinapis alba) plants and plants were tested as potential bioherbicides and green fertilizers in spinach (Spinacea oleracea) and broccoli (Brassica oleracea) production under organic field conditions for one growing season. Treatments consisted of adding either mustard meal (containing 2.2 mg Se/kg dry mass) or control-soybean meal (Glycine max L. Merr.) (containing <0.1 mg Se/kg dry mass) to the soil at rates equivalent to 0.5 and 2 t/acre, respectively, 2 ½ weeks before planting. During the growing season we observed that mustard meal treatments (especially high) lowered the emergence of resident winter annual weeds more than soy meal treatments. High rates of mustard meal reduced hand weeding time and weed biomass by almost 50% compared to all treatments. Fresh and dry biomass of both spinach and broccoli plant yields were not significantly different among all treatments. Plant Se significantly increased only in broccoli florets with high mustard meal treatments. Amending soils with Brassica seed meals have the most practical viability use in organic agriculture as a potential bioherbicide, and as a green fertilizer for promoting Se into sulfur-loving plants like broccoli.

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Poster Board No. 5

PRELIMINARY SCREENING OF SUSPECTED GLYPHOSATE RESISTANCE IN PALMER AMARANTH (Amaranthus palmeri) IN THE CENTRAL VALLEY FINDS NEGATIVE RESULTS

Palmer amaranth (Amaranthus palmeri S Watson) is a highly competitive annual weed. Over the last five years, glyphosate-resistant (GR) Palmer amaranth has been reported from the south-eastern region of the US, predominantly infesting cotton and soybean fields. In recent years, a few cases of poor control of Palmer amaranth have been reported in the California Central Valley. A suspected case of GR Palmer amaranth in San Joaquin County led to the development of this study which was to determine the response of Palmer amaranth to glyphosate treatment and test for glyphosate resistance.

A pot study was conducted at California State University, Fresno in the summer of 2010. Seeds were collected from suspected GR Palmer amaranth plants along Hwy 99, Stockton, CA. Seeds from known glyphosate-susceptible (GS) Palmer amaranth were also used in the study for comparison. At 31 days, the weed plants were partitioned into three categories by height [short (<3 in.), medium (3-6 in) and tall (>6 in)] and sprayed with Glyphosate Weathermax at the label rate. A set of unsprayed plants for each plant size was also included. About 45 days after planting, the plants were cut and placed into brown bags for drying, and then weighed for biomass.

Typical visual symptoms of glyphosate treatment were present at 22 days on the short and medium plants. Both appeared dead. However, the tall treated plants maintained color and vigor appearing similar to their control counterpart. A dry weight comparison of the tall plants revealed that the treated plants outweighed their control which indicates that the treatment had no affect on them. There was, although, a significant dry weight loss of the treated short and medium sets compared to the control. These results indicate that this Palmer amaranth biotype is still susceptible at the labeled application rate of glyphosate.

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MAGMA MIXING AS RECORDED IN INCLUSION-HOST INTERACTIONS OF LASSEN VOLCANIC CENTER, CALIFORNIA

Within the volcanic deposits of the Lassen Volcanic Center (LVC), California, there is abundant evidence of magma mixing processes between the host rhyodacite and the andesitic inclusions (Tepley, et al, 1998; Clynne 1999) as seen in large-scale hand samples, and microscopic textures (Salisbury, et. al. 2008, Clynne 1999, Tepley, et al. 1998). The petrography of an eruption holds clues to the conditions of the magma chamber and the conditions of mixing. If resident felsic magmas are cool, they should be more crystalline, and lead to greater quenching of recharge magmas—so inhibiting mixing. As a test, we compared the percent crystallinity of host rock and mafic enclaves (vesicles excluded), the length and areas (Crystal Size Distributions, or CSDs) of crystals within host and enclave materials (at thin section scale), and the chemical composition of host and enclave materials. The first two tests were performed petrographically, and the composition of rocks was measured by X-Ray Fluorescence techniques.
The percent crystallinity of host rocks to inclusion rocks shows that the inclusions have a significantly higher overall crystalline texture compared to host material. This sharp contrast of felsic host crystallinity to mafic enclave crystallinity supports the idea that Chaos Crags experienced more mingling than mixing. Geochemically, the Harker diagram shows a connection between geochemistry and textures, with more efficient mixing of Lassen 1915, and less efficient mixing of Chaos Crags. The CSDs for host magmas argue for the presence of mixing and perhaps greater undercooling during the eruptive phase (up to a year prior to eruption) of 1915 magmas compared to the eruptive phase of Chaos Crags magmas. Therefore, Chaos Crags domes experienced most of their mixing/mingling during the eruptive phase and Lassen 1915 experienced a greater degree of its mixing prior to eruption, perhaps triggering the eruption, and further mixing (Clynne, 1999).

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DETERMINING THE HABITAT PREFERENCE OF SAND LANCE (Ammodytes hexapterus) USING MULTIBEAM BATHYMETRY IN THE SAN JUAN ISLANDS, WASHINGTON

Ammodytes hexapterus (Pacific Sand Lance or PSL) is an important forage fish supporting many marine populations, including 29 species of birds, 10 species of marine mammals, and 30 species of commercial and sport fishes. Previous studies have shown PSL to be highly substrate specific (Robards et al., 1999)

This investigation was limited to three sand wave fields: one, the central San Juan Channel (a known PSL subtidal habitat), and two previously un-sampled fields west of Sucia Island and southwest of Lopez Island in the waters surrounding the San Juan Islands, Washington. Multibeam bathymetric data, subsea video, and sediment analysis show that PSL occupy the San Juan Channel, which is composed of well-sorted medium grained (.5 mm size)siliciclastic sand.

Sediment samples from the two un-sampled fields have an average grain size higher and lower respectively than the San Juan Channel field. PSL have been recovered in the Sucia field but not in the quantity found in the San Juan Channel field. As of now, no PSL have been recovered from the Lopez field. Future work will focus on determining a predictive habitat model for PSL to help determine their distribution and abundance.

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ORDER WITHIN THE CHAOTIC: FRANCISCAN COMPLEX FIELD RELATIONS SHOW KM-SCALE OVERTURNED FOLDS, AN OLISTOSTROME DEPOSITED ON INTRA-FRANCISCAN SERPENTINITE, AND MORE

Detailed geologic field mapping of the Franciscan Complex (a group of rocks belonging to a fragment of subducted oceanic crust located along the western margin of North America) in Fairfax, western Marin County, California offers insight into accretion of intra-Franciscan serpentinite, development of mélanges (rock units comprising foreign rocks enclosed by a weaker matrix rock), and Franciscan fold geometry. The study area rock units comprise (1) coherent sandstone (not part of a mélange), (2) early Cretaceous age volcanic rocks, (3) sandstone-matrix mélange, and (4) serpentinized harzburgite.

Coherent sandstone in the field area lies beneath the Cretaceous-age volcanics. Sandstone-matrix mélange in the study area shows minimal deformation, indicating a sedimentary origin as a submarine landslide mass (or olistostrome), and contains basalt blocks up to 0.7 km and chert blocks up to 0.1 km in exposed diameter. Additionally, the present study revealed serpentinite clasts within sandstone near the base of the mélange, indicating that the sandstone was deposited on the intra-Franciscan serpentinite and that the sequence was subsequently overturned through tectonic processes. Two olistostromes were distinguished in the study area based on field relationships and differences in the mineral compositions of the sandstone matrixes. Sandstone olistostrome in the westernmost portion of the study area comprises mostly volcanic lithics with little feldspar and monocrystalline quartz, while the eastern olistostrome contains more sedimentary lithics and a larger proportion of quartz and feldspar than its western counterpart. Contact relationships with the serpentinite, sandstone bedding, and serpentinite foliation indicate that the serpentinite and adjacent units are folded into multi-kilometer scale sharp, steeply dipping, overturned folds trending NW-SE.

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ETUKU MEMBER OF THE MAMFE BASIN FORMATION, CAMEROON WEST-CENTRAL AFRICA: POTENTIAL HYDROCARBON RESERVOIR

The Mamfe Basin in the South West region of Cameroon is the smallest of the three side rifts associated with the Benue Trough of West-Central Africa. It covers a surface area of 2,400 square km. Basin fill consist of a 4,000 m thick stratigraphic succession composed of Cretaceous shales, conglomerates and sandstones of mainly continental origin. Preliminary studies show that the petroleum potential of this basin is promising with lacustrine source rocks consisting of black shales with kerogen (type I-IV) and TOC up to 7.23% (Abolo 2008). Seals are widespread and are predominantly lacustrine and overbank shales. Both stratigraphic, and structural traps including post-rift folds and syn- and post-rift faults, are present. The success of future hydrocarbon development will depend on finding a suitable reservoir with porosity and permeability to support commercial development.
This study focuses on the Etuku Member of the Mamfe Formation - a potential reservoir that occurs throughout much of the basin. The only outcrops are in the north-west where the unit has a maximum thickness of 200 m. The Member consists of conglomeratic and sandy alluvial/fluvial deposits with occasional intercalated shale horizons. Petrographic analysis of the arkosic sandstones indicates secondary porosities of up to 27%. Potential reservoir types are longitudinal and transverse bars or multistoried lenses and channels with the main source of sediments situated to the north-west of the basin. Seismic acquisition is necessary to determine the full extent of this potential reservoir.

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REVISITING THE TECTONIC SETTING OF MESOZOIC VOLCANISM, CENTRAL SIERRA NEVADA, CALIFORNIA

Located in the central Sierra Nevada, the Foothills Terrane has been neglected of geologic research since the late-1980s. During the 1980s, researchers produced a variety of models for explaining the tectonic assemblage within this area. However, they did not consider the geochemistry when developing these models, which resulted in a conflict of ideas. The objective of this study is to use geochemistry to develop a tectonic model of the origin of the Mesozoic volcanism located in the Foothills Terrane.

In order to determine the origin and tectonic setting of the Mesozoic volcanics, field samples were collected at various sites around Don Pedro Lake and surrounding areas. Petrography was used for sample priority and X-ray fluorescence was used for sample analysis of minor and major trace elements. If trace elements plot within the limits of a normalized mid-ocean ridge basalt, it would confirm that the Mesozoic volcanics of the Foothills Terrane are from a MORB-type mantle source similar to that of the PenÌ*f*on Blanco Formation (Snow, 2007) or from an Arc-type setting.

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INHIBITION OF LYSOSOMAL PROTEASES INDUCES ACCUMULATION OF FRAGMENTS OF IGF-1 RECEPTOR BETA SUBUNIT IN NEUROBLASTOMA CELLS

Neuroblastoma is a rare childhood cancer that is caused by abnormal proliferation of cells that normally would become cells of the peripheral nervous system. Activation of the type 1 Insulin Growth Factor Receptor (IGF-1R) stimulates cell survival and growth in numerous cell lines, including neuroblastoma cells. Cancer cells were treated with Fmoc-Tyr-Ala-CHN2 (FYAD) which inhibits two lysosomal cysteine proteinases, Cathepsins B & L. Cells were also treated with pepstatin, which inhibits the lysosomal aspartic proteinase Cathepsin D. Current literature shows that release of active forms of these enzymes from the lysosome into the cytosol causes cell death by apoptosis in neuroblastoma cells. In contrast, we found that inhibition of cathepsins B and L with FYAD with or without inhibition of cathepsin D with pepstatin led to neuroblastoma cell death. This cell death was accompanied by intracellular accumulation of fragments of the IGF-1R beta subunit, leading to the conclusion that cell death may be caused by disruption of IGF1 receptor-mediated cell survival. Compounds that cause selective death of neuroblastoma cells may be developed as new treatments for this cancer of childhood.

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SYNTHESIS AND CHARACTERIZATION OF LOW DIMENSIONAL BORON CARBIDE NANOSTRUCTURES

Crystalline boron carbide is an extremely hard ceramic and high-temperature refractory material. The crystal structure of boron carbide is rhombohedral (hR15; S.G. R3m) and consists of 12-atom icosahedral units located at the corners of rhombohedral unit cell connected by C-B-B or C-B-C chains lying along the cell diagonal. Electronic devices such as simple diodes and thermoelectric power converters, constructed with doped and undoped boron carbide alloys, have excellent device characteristics. In addition, it has been shown that the energy bandgap of these boron carbide alloys can be tuned between 0.7 and 2.2 eV by varying their boron/carbon ratio; and therefore extremely versatile semiconducting materials.

Boron carbide nanostructures were synthesized by plasma enhanced chemical vapor deposition technique (PECVD) via vapor-liquid-solid growth mechanisms (VLS). The boron carbide nanomaterials were grown on (100)-oriented silicon substrates in a custom-designed 13.56 MHz PECVD chamber. The deposition temperature was around 560oC and the plasma power was 200 W. Orthocarborane (C2B10H12) was delivered into the chamber as boron and carbon agent. The substrates were located on the grounded electrode during deposition. Following deposition, the samples were examined by using a HITACHI S-3500N SEM equipped with energy dispersive X-ray spectroscopic system (EDS). The X-ray diffraction (XRD) pattern of boron carbide nanostructures was determined with a PAnalytical X¡¯pert PRO diffractometer.

The as-grown boron carbide deposits appear to the naked eye grayish color. Closer examination using SEM, reveals that the deposits are crystalline mcrio- and nano-particles and thin film underneath. The particle sizes are from 300 nm to 3¥ìm in diameter. Energy dispersive X-ray spectroscopic (EDS) spectra show that the chemicals of the samples include carbon, silicon (substrate), and oxygen (surface contamination). Element mapping images also support the sample¡¯s chemical composition. However, due to the EDS detector¡¯s limit of detection, the boron peak is beyond its scope. XRD spectra show that the diffraction peaks of the sample match very well with Bragg reflection of the boron carbide standard rhombohedral model (ICDD database, ref code: 01-086-1127), indicating that the crystal structures of the particles is rhombohedral boron carbide. Further studies will be focus on growing more uniform particles with reducing sizes, and investigating boron carbide electronic properties and exploring their potential applications.

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COMPARISON OF THE SENSITIVITY OF PARALLEL HOLE AND SLIT-SLAT COLLIMATOR ARRAYS IN BREAST SPECT

A theoretical analysis is performed for several scanner designs for nuclear imaging of breast cancer, comparing two types of slit-slat arrays with one based on a standard parallel-hole collimator. The analysis focuses on collimator type and camera configuration. Breast cancer is one of the most common types of non-skin cancer in women and the fifth most common cause of cancer death. Early detection is vital for successful treatment. X-ray mammography is useful for breast cancer screening, but requires follow-up studies by biopsy or other imaging methods, and is less effective for some tissue types.

Scintimammography, or radiotracer breast imaging, is one adjunct to x-ray mammography. Radiotracer imaging depicts physiological function, and is useful for tumor imaging. Standard 3-D techniques include single-photon emission computed tomography (SPECT). Typically a parallel-hole collimator is used; the slit-slat collimator has also generated interest recently. Collimator efficiency, an important detector parameter, is the fraction of emitted photons which are transmitted by the collimator. Efficiency for the slit-slat collimator declines inversely with distance. Parallel-hole collimator efficiency is independent of distance, but the slit-slat design has a narrow frontal aperture, and so, unlike parallel-hole collimators, can image through narrow gaps between other cameras, allowing more cameras to be used.

Increasing the number of cameras increases system efficiency, allowing shorter scan times or lower levels of radioactivity. Two slit-slat based systems are analyzed using known collimator theory, and compared with a system using a standard parallel-hole collimator (Low Energy All Purpose type). The parallel-hole system had four cameras, the maximum number feasible, enclosing an imaging space 20 cm wide. Spatial resolution is 8.0 mm at the center. One slit-slat system uses a ring of 20 cameras with slit-slat collimators, placed 5 cm outside this space. A second slit-slat system uses a novel staggered arrangement of cameras. A ring of 20 slit-slat cameras is augmented with an additional 20 cameras behind the first row, viewing through small gaps between cameras in the first row. Both of these systems are designed to match the spatial resolution of the parallel-hole system at the center.

Collimator efficiency at the center of the imaging area was calculated for each of these three systems. The resulting efficiencies were 6.48×10^{-4} for the parallel-hole system, 8.66×10^{-4} for the single row slit-slat system, and 1.28×10^{-3} for a staggered array (double-ring) slit-slat system. The single-ring slit-slat system showed a 34% increase in efficiency compared to the conventional parallel-hole system, and the staggered, double-ring system showed a 98% efficiency increase. Ongoing studies include comparisons for locations other than the center of the imaging area, and for other slit-slat system designs.

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A CRITICAL ANALYSIS OF THREE METHODS OF ESTIMATING DISTANCES TO CATACLYSMIC VARIABLES

Cataclysmic variables are a class of stars. They are among the most active research topics in astrophysics today. This is because they reveal several physical processes important in stars, such as nuclear outbursts, accretion of gas by gravity, and the dynamics of accretion disks, or cosmic whirlpools.

Recent observations with /Hubble Space Telescope/, as well as similar measurements since 2003 from other telescopes, have provided reliable distances (based on parallaxes) to 34 relatively nearby cataclysmic variables. These observations take literally years to make, however. Astronomers therefore desire easier, approximate methods of estimating these distances. Three such methods have appeared in refereed journals since 2006.All three methods use the infrared light from cataclysmic variables, which is relatively well understood and calibrated.

In this poster, we carry out the first-ever comparison of these three methods with each other, and with the more reliable, but smaller, number of /Hubble/ and other (parallax) observations, all reported by other authors in the literature. We have found that one of the three methods is more reliable than the others, and that, with improved calibrations; it has the prospect of estimating cataclysmic variable distances within 10%. Just as importantly, this would use just a few observations, made in a single night, which are far easier to obtain than a multi-year campaign with /Hubble/.

This critical analysis that we report in this poster should therefore get much attention from astronomical researchers, not only because of its timeliness, but also because since 2003, infrared sky surveys have observed at least 194 cataclysmic variables. Our analysis therefore promises to extend greatly the number of cataclysmic variables with known distances. We plan to publish it in the refereed literature in the coming year.

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ANALYZING ATLAS SIMULATION DATA TO SEARCH FOR NEW PARTICLES

ATLAS (A Toroidal LHC ApparatuS) is a High Energy Particle Physics (HEP) experiment at the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland which has been designed to make new discoveries in particle physics. Some of the possible findings that the particle physicists at CERN hope to discover are the Higgs boson (the particle which gives mass to every other particle in the Universe), supersymmetry (a new kind of fundamental symmetry which is required by Superstring Theory), extra spatial dimensions, micro-black holes, and a whole zoo of other exotic possibilities. In order to be able to make these new discoveries the many components of the 44 meter long by 25 meter diameter ATLAS detector have to be calibrated. The calibration is done by detecting previously observed particles such as the W and Z bosons of the electro-weak interaction.

My part of the calibration process involved using the ROOT software package (the standard software package in particle physics and astrophysics experiments) to analyze simulated data of Z bosons for the ATLAS detector. This analysis has yielded a method for optimizing the proper identification of Z bosons while rejecting misidentification and background events as much as possible. This approach incorporates applying a series of cuts to the simulated data that filter out particles with energies that do not match the energies of the Z boson. Because background events occur at a rate millions of times greater than the rate of Z boson events, this optimization process is essential in order to successfully observe the Z boson from real ATLAS data.

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ANALYTICAL SOLUTIONS FOR VOLUME SENSITIVITY OF SLIT-SLAT COLLIMATORS IN NUCLEAR MEDICAL IMAGING

Slit-Slat SPECT collimators are used with gamma ray cameras in medical nuclear imaging. The sensitivity of the camera varies with distance and angle from the detector. The detector is located outside a container, either cylindrical or rectangular, with a radioactive substance distributed evenly within it. These represent background levels of radiopharmaceuticals in human anatomy for different clinical imaging tasks.

We obtain the sensitivity of the camera for the cylindrical container by averaging sensitivities for points within the container. We found an analytical solution for the sensitivity contribution for arcs or circles within the container based on the field of view of the camera. The variables are distance from detector, radius of container, radius of interest, and acceptance angle of detector. The sensitivity will have a cosine dependence which relates to the geometry of the shielding unit and incoming photons. Sensitivity will also diminish inversely with the distance. The total line contribution is found by integrating all the points along an arc of a particular radius (or a complete circle if it is all within the camera's field of view). The upper arc, lower arc, and circular components are summed numerically and normalized to give average volume sensitivity.

We also found average the sensitivities of a rectangular container in Cartesian coordinates using the cosine and inverse distance dependence along with the boundary conditions and detector field of view. The volume contribution can be integrated to find an exact solution in terms of container width, container depth, and lateral displacement of the detector.

The line and total sensitivity solutions can be applied for imaging system design and analysis. For the circular container, the final summation is preformed digitally. The rectangular container gives a closed form solution. In both cases the solution is simpler and more general than solutions available from other methods.

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WAVES IN ACCRETION DISKS, OBSERVED WITH FRESNO STATE'S STATION AT SIERRA REMOTE OBSERVATORIES: HV ANDROMEDAE, LQ PEGASI, AND LN URSAE MAJORIS

We present observations of three cataclysmic variable stars: HV Andromedae, LQ Pegasi, and LN Ursae Majoris. A cataclysmic variable star is a binary star system composed of a red dwarf orbiting a white dwarf. These stars orbit closely, typically in 3-4 hours. Due to this close orbit, gas spills from the red dwarf into orbit around the white dwarf. This forms an accretion disk. Accretion disks are found throughout the Universe: from planetary formation, Saturn's rings, black holes that swallow stars, to the Milky Way's spiral structure. Our goal in studying these three cataclysmic variables was to search for evidence of waves, warping, or bending of their accretion disks.

Photometry is the study of how the brightness of an object changes over time. With cataclysmic variables much of the fluctuation in brightness is from the accretion disk. We collected time-resolved differential photometry of three cataclysmic variables using Fresno State's remotely controlled telescope at Sierra Remote Observatories. After measuring our photometry, we searched for waves in the data.

We have surprising results for each of the stars studied. All of these objects have prominent low-frequency periodicities not seen in the literature. This can be attributed to Fresno State's Remote Observatory's ability to observe stars for extended periods of time. We found strong evidence for both warping and bending waves in LQ Pegasi. In LN Ursae Majoris, we discovered apparently chaotic behavior, with the low-frequency wave changing significantly in just under a month. We also see clear evidence for short-period waves in HV Andromedae, also with some rumbling at low frequencies. Our observations of these three cataclysmic variables, especially of LN Ursae Majoris, warrant further study in the form of radial-velocity studies.

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BACTERIAL ENDOPHYTE DIVERSITY IN THE LODGEPOLE PINE

The goal of this study is to increase the knowledge of the diversity and community composition of culturable bacterial endophytes found within the healthy tissue of plants. We aim to isolate and identify bacterial endophytes from the needle tissue of lodgepole pine. The questions directing the course of this study are: 1) What is the diversity and community composition of culturable bacterial endophytes found in the needles of lodgepole pine? 2) What environmental factors structure the endophyte diversity and community composition seen in culturable lodgepole pine bacterial endophytes? 3) Does the age of the tree have an impact on the endophyte diversity and community composition seen in culturable endophytes? Needle tissue was sampled from 11 high elevation meadows in Yosemite National Park. Endophytes were cultured from the tissue samples using liquid and plate culture methods. Unique colonies were successfully isolated and DNA extractions were carried out for sequencing of the 16S rRNA gene for each isolate. Samples from a smaller study of Tuolumne Meadows are currently being analyzed for sequence similarity to known bacterial sequences. We conclude that our culture methods were successful for the isolation bacterial endophyte colonies, future work will reveal the identity of the endophytes isolated.

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EFFECTS OF LOW TEMPERATURE FIRE ON SOIL AGGREGATE STABILITY

The use of fire in forest lands as prescribed burning or in agricultural systems, as a tool to clear lands or to reduce the weed population has increased in recent years. This study was motivated by field observations of marked increase in soil erodibility following low-temperature (<200 °C) burns, which have been previously regarded as harmless to soil structure. The study was designed to test our hypothesis that evaporation of soil pore water leads to high vapor pressure formation within soil aggregates. If this vapor pressure exceeds the tensile strength of the soil, the soil aggregates breakdown resulting in increased susceptibility to erosion. In this research, the interactions between heating temperature, soil water content and stability of soil aggregates were studied. Fire was simulated in the laboratory for soil aggregates with size range between 1-2 mm using a muffle furnace equipped with a timer and heating rate control under controlled laboratory conditions. Five heating temperatures were selected for this study, entailing maximum temperatures of 75, 100, 125, 150 and 175 °C. The experiments were done on soils with three gravimetric water content (20, 40 and 60 %). The stability of the heated aggregates was measured by wet sieving apparatus to determine the resistance of soil structure against mechanical or physicochemical destructive forces. The total organic carbon content was determined based on Loss-On-Ignition method (LOI) by exposing the samples to 400oC for 16 hours. A significant loss of aggregate stability was observed above the boiling point of water, without detectable loss of soil organic matter, confirming our hypothesis.

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ANGIOTENSIN RECEPTOR BLOCKADE DECREASES HEPATIC TRIGLYCERIDE CONTENT AND REDUCES RETROPERITONEAL FAT DEPOSITION FOLLOWING INCREASED GLUCOSE INTAKE IN A MODEL OF METABOLIC SYNDROME

Angiotensin receptor blockers (ARB) improve insulin signaling, which alleviates the consequences of insulin resistance. Also, excessive glucose intake can exacerbate the deposition of adipose, and subsequently, plasma lipid levels in insulin resistant conditions. To test our hypothesize that ARB decreases hepatic triglyceride content following increased glucose intake in a model of metabolic syndrome we studied 6 groups of rats: 1) LETO (lean control strain), 2) OLETF baseline (BL; 9 wk), 3) OLETF (15 wk), 4) OLETF + ARB (10 mg olmesartan/kg/d), 5) OLETF + high glucose (HG; 5% in water) and 6) OLETF + ARB + HG. There was an increase in plasma triglyceride (TG), plasma glycerol, free fatty acids (FFA), ß-hydroxybutyrate, retroperitoneal fat (retro fat) and liver TG indicative of dislipidemia in HG (respectively: 184%, 24%, 20%, 39%,25%, 170%). ARB treatment in HG reduced plasma TG 9%, plasma glycerol 14%, FFA 25%, retro fat 15% and liver TG content 39% suggesting that blockade of AT1 reduces hepatic TG production. The data demonstrate a profound benefit from ARB treatment on lipid metabolism and fat deposition suggesting that besides the antihypertensive effects of ARB treatment, ARBs can also improve the condition of metabolic syndrome by improving the lipid profile and reducing adiposity.

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DIVERSITY IN GENES FOR PESTICIDE DEGRADATION

Introduction: Methyl Bromide alternatives, Chloropicrin (CP) and Methyl Iodide (MeI), are used for fumigating nematodes, bacteria, fungi, and weeds in soils. We isolated 16 bacterial strains that degrade CP and MeI from these soils. Of interest are two genes essential for pesticide degradation: cmuA (Appl Environ Microbiol 64: 1933–1936) and mihA (isolation described below). This analysis provides insight into the evolution of degrading microbes and the diversity of pesticide degrading pathways.

Methods: Tn5 transposon mutagenesis produced a mutant that lost the ability to degrade MeI; the interrupted gene (mihA) was cloned and sequenced. We developed PCR primers for mihA using Primer Express and cmuA primers as described by McDonald et al. (Environ Microbio 4:193-203). The sixteen strains were amplified with the primers.

Results: Three degraders were found to contain cmuA, two CP, and one MeI. The cmuA gene is located on plasmids in the CP degraders. Transposon mutagenesis in Wautersia sp. led to the identification of hydrolase gene, mihA, needed for degradation. With the mih primers, two MeI and five CP strains amplified.

Conclusions: In degraders isolated from pesticide treated soil, we studied cmuA and mihA, genes needed for the degradation of fumigants CP and MeI, respectively. (1) A BLAST search of mihA DNA sequences found no significant similarity; however, the translated amino acid sequences show approximately 50% identity to amidohydrolases, part of the superfamily of metallo-dependent hydrolases. This suggests it is a novel gene for pesticide degradation. (2) We find mihA in 62% of the CP and 25% of the MeI degraders. (3) Phylogenic analysis of the cmuA genes shows our sequences form a distinct clade and suggests horizontal gene transfer, perhaps mediated by plasmids. Genes needed for pesticide degradation in the remaining 25% of our degraders are unknown.

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PROTEOMIC EVALUATION OF PESTICIDE-RESISTANT BREAST CANCER CELL LINES

There is considerable evidence linking cumulative and sustained exposure to estrogens as a key promoter of breast tumor proliferation. Chemicals with estrogenic activity can bind to the estrogen receptor (ER) to affect estrogen-responsive genes. Organochlorines are a class of chemical pesticides that can act as xenoestrogens to disrupt normal endocrine function. Methoxychlor and Toxaphene are two organochlorine pesticides that have been widely used in California. Statistical data suggest that past use of these pesticides shows a positive association with age-adjusted incidence of breast cancer in Hispanic women in Central California counties. This study investigates the hypothesis that Methoxychlor and Toxaphene exposure induce differential molecular pathways in a cell culture model utilizing cell lines that are ER positive (ER+) or ER negative (ER-).

Two breast cancer cell lines, MCF-7 and MDA-MB-231, were used as a model for evaluating differences in response to treatment with Methoxychlor and Toxaphene. Cytotoxicity studies demonstrated that the sensitivities of two cell lines to the pesticides are different. The MCF-7 cell line (ER+) was more sensitive to both pesticides. Furthermore, pesticide-resistant clones of MCF-7 and MDA-MB-231 were established and compared to their sensitive counterparts. We have focused on the mitochondrial proteome due to its role in cellular detoxification and apoptosis. Thus, the mitochondrial proteome of pesticide-resistant cells was compared to that of non-resistant control cells. We report here the positive identification of several differentially expressed proteins. These results provide a basis for understanding specific pesticide-induced molecular mechanisms and their possible relationship to ER+ and ER- breast cancer.
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Poster Session II
Poster Board No. 23

LATINA FARMWORKERS OF THE SAN JOAQUIN VALLEY WITH POLYMORPHISMS IN XENOBIOTIC-METABOLIZING GENES HAVE ELEVATED RISK OF BREAST CANCER

California is the leading state of agricultural produce in the United States. There has been a wide range of research correlating cancer with pesticide usage. A common class of pesticides, organochlorines (OC), resembles the structure of estrogen and are collectively called xenoestrogens (environmental estrogens). Exposure and accumulation of xenoestrogens are known to have profound effects on women's health including *in utero* feminization, breast growth and lactation, and breast cancer. The pathway to xenobiotic elimination from the body is a multi-step process resulting in excretion of contaminants through the urine or bile. The first step involves oxidation which is thought to be primarily carried out by the Phase I enzyme family, cytochrome P450 (CYP), and is typically an activating reaction creating a more polar byproduct. The second step involves conjugation with an endogenous ligand through a Phase II enzyme family, glutathione-S-transferase (GST), and is typically a detoxifying reaction. The goals of this study were to determine the association between exposure to organochlorine pesticides and breast cancer risk in the Hispanic (Latina) female population of the intensely agricultural San Joaquin Valley of California by assessing single nucleotide polymorphisms (SNPs) in select xenobiotic-metabolizing genes. Our study involved the use of DNA samples consented from 42 Hispanic participants and utilized three different molecular strategies. We found no association between the GSTM1 null polymorphism and breast cancer risk in this sample (O.R. = 0.99, 95% CI=0.28, 3.51), but did find a doubling in breast cancer risk among those women who carried the null polymorphism for GSTT1 (O.R. = 2.21, 95% CI=0.39, 12.63). We also genotyped two CYP1B1 polymorphisms (codon 119 Ala/Ser and codon 432 Val/Leu). While no association in breast cancer risk for codon 119 (O.R. = 0.77, 95% CI=0.14, 3.70) was found, we did find elevated risk of breast cancer (O.R. 2.33, 95% CI= 0.64, 8.54) at codon 432 (Val>Leu) suggesting that women carrying the Val CYP1B1 allele had higher risk than those women with the Leu/Leu genotype. Due to the small sample population, Odds Ratios are deemed not statistically significant and thus one must be prudent in drawing firm conclusions. This study indicates that it is feasible to identify, trace, consent and recruit female Hispanic women in the San Joaquin Valley of California who have recently been diagnosed with breast cancer. It is possible to obtain comprehensive lifestyle information, including work histories and to construct profiles of pesticide exposure. However, it is challenging to obtain saliva samples from this demographic and very difficult to obtain written informed consent to use saliva samples to extract DNA for research purposes.
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Poster Board No. 24

FRET ANALYSIS OF THE INTERACTION BETWEEN ALZHEIMER'S DISEASE RELATED PROTEINS, APP AND X11

It is widely accepted that Alzheimer's disease (AD) is caused by abnormal cleavage of the membrane spanning protein, amyloid precursor protein (APP). This results in production of Aβ fragments that accumulate as extracellular plaques around the brain. X11, a family of multi-domain proteins bind to the C-terminal of APP by their phosphotyrosine-binding (PTB) domain. This binding prevents APP processing and Aβ production. The interaction of X11 with APP is not well characterized. In the present study, Fluorescence resonance energy transfer (FRET) was used to study the interaction between APP and X11α, a neuronal isoform of X11. The proteins under study are fused with a donor and acceptor chromophores with overlapping emission/absorption spectra. For FRET to occur, the chromophores are to be separated by a suitable orientation and a distance of 10-80 A^0.

The interaction was analyzed by Immunohistochemistry using fluorescently labeled antibodies and by cloning APP and X11α into fluorescent vectors for endogenous studies. NTera1/cl.D1 (NT2) cell line was used since they endogenously express APP. Alexa flour 488 and 555 antibodies with donor and acceptor chromophores that recognize antibodies against APP and X11α respectively were used. To analyze endogenous proteins levels, APP and X11α DNA were cloned into CFP (Cyan Fluorescent Protein) vector and YFP (Yellow Fluorescent Protein) vector respectively. These vectors were co-transfected into the NT2 cells to study FRET since both proteins are expressed in fluorescent vectors.

In both analyses, the acceptor emission was observed predominantly over the donor emission indicating the intermolecular FRET between the two proteins. Thus, we conclude that the interaction between the two proteins is strong. Further analysis can also yield information such as the orientation of proteins during interaction, location and exact timing of interaction. These data might support X11α as a possible treatment for AD.

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Poster Board No. 25

COMPARISON OF BODY MASS INDEX, WAIST TO HIP RATIO AS PREDICTORS OF BODY FAT IN OVERWEIGHT OR OBESE ADULTS

Introduction: Obesity, as one of the leading preventable causes of death worldwide, is associated with numerous adverse health outcomes. These adverse health outcomes include: diabetes, hypertension, hyperlipidemia, metabolic syndrome, and sedentary lifestyle. These are primary risk factors for cardiovascular disease. Prevention and treatment of the risk factors of cardiovascular disease are a primary focus of the physicians of the Community Medical Center Family Medicine Clinic. Body mass index (BMI) has been widely used by clinicians to estimate obesity. However, there is a lack of data that demonstrate the correlation of BMI and body fat. The objective of this study is to determine the correlation of percentage of body fat (PBF) with BMI and waist to hip ratio (WHR) in overweight or obese adults.

Methods: All patients referred to the Community Medical Center Family Medicine Healthy Lifestyle Clinic since 2006 who completed an initial visit were studied. Among the reasons for referral were patients who had a BMI greater than 25 and the motivation to get fitter and healthier through lifestyle change. Secondary data analysis of the Healthy Lifestyle Clinic database was performed after information from the database was downloaded without identifiers. Statistical analysis was performed using SAS statistical software. Descriptive statistics for demographic characteristics were calculated separately for females and males. For each gender, Spearman's correlation coefficient was calculated for PBF to BMI and PBF to WHR.

Results: One hundred patients were included in this study. BMI and PBF were observed to be significantly positively correlated in both females (n=66; r=0.629; p<0.0001) and males (n=34; r=0.632; p<0.0001). WHR was found to be significantly positively correlated with PBF in males (r=0.540; p=0.001), but not in females (r=0.078; p=0.531). When patients were divided into Hispanic and non-Hispanic subgroups within each gender, BMI and PBF were significantly positively correlated in Hispanic females (n=45; r=0.606; p<0.0001), non-Hispanic females (n=21; r=0.765; p<0.0001), and Hispanic males (n=19; r=0.777; p<0.0001), but not in non-Hispanic males (n=15; r=0.293; p=0.289). In contrast, WHR was found to be significantly positively correlated with PBF in Hispanic males (r=0.772, p=0.0001) only, but not in Hispanic females (r=0.095, p=0.536), non-Hispanic females (r=0.018, p=0.938) or non-Hispanic males (r=0.242, p=0.386).

Conclusions: BMI is better correlated with PBF than WHR in overweight or obese adults. Further studies are warranted among non-Hispanic males.

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Poster Board No. 26

SERUM AMMONIA LEVEL DOES NOT AFFECT ANION GAP MEASUREMENT

Introduction: Serum anion gap (AG) is calculated from the formula: AG=measured cations-measured anions (Equation 1). Since the concentration of positive charges (cations) is always equal to the concentration of negative charges (anions), AG can also be presented as: AG=unmeasured anions-unmeasured cations (Equation 2). Ammonia exists as the form of ammonium ion (NH_4^+), which is a cation. According to Equation 2, increased ammonium could possibly lead to elevated unmeasured cations, resulting in a decrease in AG. Therefore, our research is to investigate the correlation between ammonia level and AG.

Methods: After IRB approval, a list of anyone who had an AG measured at the laboratory of Community Regional Medical Center, Fresno, CA in 2008 was obtained. Data from a random sample of patients who had serum ammonia and AG level (part of basic metabolic panel or complete metabolic panel) measurements was obtained from electronic laboratory records. We also collected albumin and globulin measurements that were taken at the same time or on the same day as the AG.

Results: Information from seventy patients was collected. AG, albumin and globulin measurements were all normally distributed, while ammonia level was not. Ammonia level ranged from 21 to 653 umol/L and AG ranged from 1 to 19 mmol/L in our dataset. Spearman correlation of AG and ammonia was 0.012; p = 0.9191; 95% CI (-0.230 to 0.253). Pearson correlation of AG and Albumin was 0.344; p = 0.0035; 95% CI (0.119 to 0.536). Pearson correlation of AG and globulin was -0.086; p = 0.4767; 95% CI (-0.315 to 0.152).

Conclusions: There was no correlation between the ammonia level and AG measurement. The positive correlation between albumin and AG confirms previous findings in the literature. The lack of correlation observed between the ammonia level and AG measurement results from the quantity of ammonia. Ammonia is measured at umol/L, however, AG is measured at mmol/L. Although, ammonia level does affect the amount of cations in serum, due to its small quantity, it does not significantly alter the measurement of AG.

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Poster Board No. 27

UTILITY OF A DIABETES THEMED *FOTONOVELA* TO REDUCE HYPERGLYCEMIA IN LATINO DIABETICS

Background: Elevated glucose is a risk for amputation, renal failure, coronary artery disease, neuropathy, and blindness. Controlling glucose as measured by hemoglobin A1c (A1c) reduces risk for these complications. Information itself is not enough to change behaviors that increase risk for these complications. Latinos in America are particularly at risk for diabetes (DM) and its complications. A *fotonovela* is a booklet telling a story using photos with superimposed speech bubbles much like an American style comic book. This *fotonovela* tells a story about diabetes complications in a culturally appropriate context that emphasizes impact on family and might help motivate Latino patients to control their sugar better.

Methods: We did a single-blinded, randomized, controlled trial of a DM themed *fotonovela* against a non-DM themed *fotonovela* to assess its effect on glycemia as measured by A1c. After a provider had seen a Latino type 2 diabetic patient with an elevated A1c (>7%), the investigator consented them then gave them a sealed envelope with the *fotonovela*. The primary and secondary outcomes were A1c change in the 1-5 month and 6-12 month periods. We used t-tests of differences to compare the groups for changes in A1c from baseline.

Results: There were 124 patients consented to participate in the study; 67 (54%) randomly received the DM themed *fotonovela*. Baseline A1c values were 10.0 +/- 2.2 in the active group and 9.8 +/- 1.8 in the control group. Follow-up A1c information was available for 93 participants (75%); 51 in the active group (76%). At the first follow-up 1 to 5 months after randomization, A1c decrease was 1.5% +/- 1.9 in the active group and 1.0% +/- 2.0 in the control group (p=0.556). At the 6 to12 month follow-up time period A1c decrease was 1.1% +/- 2.2 in the active group and 1.8% +/- 2.5 in the control group (p=0.342).

Conclusions: This particular educational intervention did not change glycemia as measured by A1c. It is possible that this particular *fotonovela* did not motivate behavioral change. It is possible that this intervention in general is not effective. Future research might look at *telenovelas* for health education in this population.

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Poster Session III
Poster Board No. 1

FEATURE-BASED STEREOTYPING: THE EFFECTS OF APPEARANCE ON PERCEIVED SOCIAL MISCONDUCT AND ACADEMIC SUCCESS

This study is designed to identify whether the epicanthic eyes characteristic of Asian faces and the nose and mouth characteristic of African American faces superimposed on an otherwise Caucasian face elicit stereotypic expectations of academic achievement and social misconduct respectively. Stereotyping based on features rather than group membership has been explored primarily with Afrocentric features: Causasian faces with more Afrocentric features have been shown to elicit expectations associated with racial bias. This study will assess whether the phenomenon extends to other groups as well. Three facial photographs of Caucasian men will be altered: epicanthic eyes will replace the original eyes in version 1 and the nose and mouth of an African American man will replace the nose and mouth of the original in version 2. Three stimulus sets of 3 photographs each will be shown to 20 raters per set (60 participants total). Each set will include one original face, version 1 of another face and version 2 of the third face. Raters will indicate predictions of personality associated with academic and socialization/conduct for all three faces. We hypothesize that the faces with epicanthic eyes will receive higher ratings on the academic scale relative to the original faces, and the Afrocentric versions will receive lower scores on the socialization/conduct scale relative to the original versions.

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THE EFFECT OF PHONOLOGICALLY SIMILAR WORD FORMS ON CROSSMODAL SOURCE IDENTIFICATION

This experiment will examine the nature of multisensory speech information. It will also analyze phonologically similar word forms and their effects on visual-audio matching abilities. The monosyllabic words used were chosen from a Lexical Equivalence Class (LEC) word list. This experiment asked participants to match heard voices with dynamic visual-alone video clips of speakers' articulating faces. This crossmodal matching task was used to examine whether vocal source matching can be accomplished across sensory modalities.

Previous experimental results showed that observers could match speaking faces and voices, indicating that information about the speaker was available for crossmodal comparisons. In a series of follow up experiments, several stimulus manipulations were used to determine some of the critical acoustic and optic patterns necessary for specifying crossmodal source information. The results showed that crossmodal source information was not available in static visual displays of faces and was not contingent upon a prominent acoustic cue to vocal identity. Furthermore, crossmodal matching was not possible when the acoustic signal was temporally reversed.

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ACHIEVEMENT GAP BETWEEN ENGLISH LANGUAGE LEARNERS AND NON-ENGLISH LANGUAGE LEARNERS IN READING TEST PERFORMANCE

The No Child Left Behind (NCLB) Act mandated that all students' achievement, especially those traditionally left behind, reach proficiency level across subjects by 2014. The purpose of this study was to investigate the English Language-Arts (E/LA) achievement gap between English Language Learners (ELLs) and Non-English Language Learners (non-ELLs) at the national, state (i.e., CA) and local (i.e., Fresno County) level. This study worked primarily with data pulled from the National Center of Education Statistics (NAEP), California Department of Education (e.g. STAR, CST) and the California Standardized Test scores of a 6th grade school. Result indicated that ELLs are outperformed by non-ELLs at the national, state, and local level. Also, the achievement gap increased from 4th to 8th grade for both ELLs and non-ELLs. Thus, results suggest that the E/LA achievement gap did not decrease between ELLs and non-ELLs. This study presents important results to better understand factors affecting the achievement gap between ELLs and non-ELL.

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Poster Board No. 4

A LOOK AT ETHNIC IDENTITY AND ACCULTURATION WITHIN THE MIEN COMMUNITY

The purpose of this study was to (1) determine to which identity (Mien, Mien American or American) Mien youth feel the strongest sense of belonging, (2) examine the acculturation strategies individuals use when living in intercultural societies, (3) examine ethnic identity and acculturation, taken together, and (4) look at where the Mien are today, and speculate about what the future may look for them, and what this means for recent immigrants to the U.S.

Mien is a recent group of immigrants to the U.S. The end of the Indochinese War in 1975 brought over one million refugees to the United States. Of those refugee groups, the Mien are the smallest major refugee group in the U.S and the least known (MacDonald, 1997). Relatively little has been written about the Iu-Mien. Knowledge about this group is primarily based on oral sources, except for recent literature, which examines their origin.

All participants (N=100) were of Mien background between the ages 18-47. The Multigroup Ethnic Identity Measure (MEIM) was used to measure ethnic identity across three identities: Mien, Mien American, and American identity. The East Asian Acculturation Measure (EAAM) was used to assess acculturation in four domains: integration, assimilation, separation, and marginalization. Mien American identity was the most preferred identity, although claiming a Mien identity was also a strong trend. Assimilation and integration were the dominant acculturation strategies, though relative level endorsement for which strategy varied by generational status. It would appear that those who identify primarily with Mien culture are embracing an integration approach to acculturation, but as American identity becomes more important, assimilation tendencies begin to get stronger. Overall, Mien youth have embraced both Mien and American culture.

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Poster Board No. 5

IMPROVING CLASSROOM CLICKER PRACTICES: THE EFFECTS OF ACADEMIC INCENTIVES AND FEEDBACK ON LEARNING OUTCOMES

Many university classrooms have incorporated multiple-choice questions throughout lectures and having students use personal response systems or clickers to respond. Past research indicates clickers have positive effects on academic performance as well as increase the opportunities for students to participate in class. Researchers and instructors also use diverse practices while incorporating clickers into classrooms. Generally, feedback of the correct response varies as well as the incentives attached to clicker responses. This study examines the use of incentive contingencies and feedback type on long-term retention of the course material in classrooms with clickers. Participants are shown a prerecorded psychology lecture with clicker questions presented throughout the lecture. Feedback of the correct clicker response is given either verbally or with a visual display of the response distributions. Participants are also given incentives based on either participation or the number of correct responses to clicker questions during the lecture. There is also a control group that receives no incentives. After the lecture, participants watch a five minute video and take a 20-question quiz. With data currently being collected, we predict higher quiz scores for conditions receiving class distribution feedback as well as higher quiz scores for participants in the incentive conditions. The information from this area of research addresses the deficit in the literature between the basic research on incentives and the applied areas of clicker practices.

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IDENTIFYING INTERMITTENT EXPLOSIVE DISORDER (IED) BY FACIAL EXPRESSIONS

Intermittent Explosive Disorder (IED) is an impulse control disorder characterized by anger attacks. Everyone experiences and expresses anger, but people with IED have irritable moods and sporadic anger attacks associated with aggressive beahvior. Depressed people have depressed moods, which are sometimes characterized by irritability. However, their primary negative affective experience occurs in conjunct with low positive affect and cognitions of inadequacy and inefficacy. People with IED probably do not have low positive affect because their cognitions are characterized by a sense of inflated efficacy and entitlement. Facial expressions of emotion may provide a good indicator of these different emotional processes. In the current study, we look at the potential of facial expressions during intake interviews to distinguish between IED and another emotional disorder, depression. Our hypothesis is that the facial expressions for those diagnosed with IED will differ from those diagnosed with depression. The population sample is 199 students who sought counseling at a university psychological services center who completed a warm-up interview and a structured diagnostic interview. During the warm-up interview, the participants described their reason for coming into therapy. Research assistants coded facial expressions of participants in their responses to this question with a modified facial expression coding scale. Results have implications for the diagnostic validity of IED and for the mental health professionals' information gathering during intake interviews.

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ALCOHOL'S EFFECTS ON SHORT-AND -LONG-TERM MEMORY FOR NOVEL ENVIRONMENTS IN THE ZEBRAFISH (DANIO TRERIO)

Zebra fish (Danio rerio) are a freshwater tropical fish that have been used in laboratory testing for over thirty years. Prior tests with Zebra fish and ethanol alcohol have been done and have shown a decrease in response time. Our study will examine the effects of alcohol on memory formation and memory consolidation in the Zebra fish. When a fish enters a new environment is shows fear and as a tactic, it dives to the bottom and remains still. Over time, the fish rises and shows less fear, suggesting that they are remembering the tank, and in turn diving less. We are running fish for three trials a day, for four days in a row. We have four groups of sixteen fish: control and the test subjects, that have been administered a selected dosage of ethanol alcohol. We expect to see the control group to dive less over the trials and days. We expect the test subjects that were given the alcohol to continue to dive fully to the bottom of the tank throughout the trials. This would follow our theory that the Zebra fish's long term memory is affected by the dosage of alcohol, which in turn affects their behavior. We will also test how the concentrations of alcohol effect the memory by testing fish who are administered the alcohol before the test and after the test. We hope that our findings can be used on further alcohol research, such as with infant fish, in order to compare to diseases like fetal alcohol syndrome.

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AN ETHNOGRAPHY OF WATER BIRTH AND ITS REPRESENTATIONS ON YOUTUBE.COM

The purpose of this qualitative research study is to report semi-structured interview narratives from sixteen mothers who have given birth immersed in water and posted their live birth videos on YouTube.com. This paper introduces the concept of water birth as an alternative birth practice and discusses the contributions of anthropologists to the anthropology of birth. Anthropologists Mead and Jordan establish the importance of studying birth cross-culturally. Sargent and Davis-Floyd call for the narratives women share related to their childbirth experiences, with specific attention paid to women who engage in childbirth activism and "reject standardized protocols" stating that "the methods and values of these activists, their language and discourse, beliefs and practices, successes and failures, have much to teach about intentional culture change"(Davis-Floyd,Sargent,1997: 12).
My documentation of the experiential narratives my interviewees shared with me related to their water birth and their online social networking activities responds to that request. I discuss the narratives of experiences under the themes that emerged from the interviews. First, I discuss their experiences using the internet as a tool for self directed childbirth education and virtual networking with other mothers. Next, I discuss their experiences navigating birth options in their geographical location.. Third, I discuss the types of authoritative knowledge that were influential to their birth decisions. Then, I discuss the narratives they use to describe their personal experiences giving birth immersed in water.

In conclusion, online visual birth media and mother's textual narratives published on the internet will likely continue to have a significant influence on the personal childbirth decisions of pregnant women who use the internet as an educational tool. As the influences they discover from other mothers in their social networks explain childbirth in ways they view as more favorable, or making more sense to them experientially, they may devalue the authoritative knowledge within dominant paradigms of birth. The mothers that participated in this research demonstrated the authoritative value they put into the voices of other mothers. Further research into the online social networking activities that mothers engage in regularly can reveal more ways that they are stimulating cultural change through their social activism in virtual spaces.

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Poster Board No. 9

DO YOU GET ME? EXPLORING CROSS-CULTURAL COMMUNICATION BETWEEN REFUGEES AND HEALTH PRACTITIONERS

In medical encounters, there are at least two cultures, two voices, in the two languages being expressed. The aim of this paper is to explore cross-cultural communication between refugees, specifically Vietnamese refugees who have lived in the United States for more than 20 years, and health practitioners who assist refugees. After approximately 50 hours of participant observation at the Dallas County Health Services Refugee Clinic and six semi-structured interviews, I analyzed reoccurring themes that were associated between communication and its effect on patient's health outcome. Reoccurring themes include substitution, omission, editorialization with the use of an interpreter, and nonverbal communication expressed by both populations. Communication was negotiated between both parties and nonverbal communication has potential to be beneficial in fostering effective communication.

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Poster Board No. 10

MARRIAGE, DIVORCE AND RELIGIOSITY: A QUALITATIVE-STUDY OF IRANIANS IN THE 21ST CENTURY AND THE INTERPLAY OF RELIGIOSITY AND THE MARITAL PROCESS

In Iran, where the religion of Islam is dominant, the 2009 divorce rate was 14% (Women's Information and Statistics Center, 2009). In the United States, a predominantly secular country, the divorce rate was 47.4% in 2004 (U.S. Census, 2005). My research explores the relationship between religion, marriage, and divorce. Specifically, I will examine the significance of religiosity in the construction of meaning for married couples. I will be interviewing 10 Iranian couples about their marriages, and with this qualitative data, I will examine the meanings of religiosity in the coupling processes, in married life, and in the meanings of divorce. The literature in this research analyzes Iranian marriage practices and laws, together with the interviews, this research may give an insight to some of the reasons behind the low divorce rate in Iran.

This research found that participant Iranian couples' meaning of marriage and divorce is influenced by the Islamic teachings which they practice. In all three themes discussed, this research offered insight into how various Quranic and Islamic teachings were correlated with Iranian participants experiences in marriage and divorce. Since Iran is a theocracy, religious values and beliefs of the Shia Islamic Faith influence the culture and jurisprudence which society upholds. The findings in this research indicated that the interplay of religious law and practice from the Shia Islamic faith which emphasizes the importance of marriage while demoting divorce in culture, jurisprudence, and daily life may somehow be maintaining the low divorce rate in Iran.

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ISLAMIC REVIVALISM AND HIZB-UT-TAHRIR IN KYRGYZSTAN: WHY THE UZBEK POPULATION MUST BE CONSIDERED

The focus on Islamism in the Middle East is shifting to the issue of Islamic revivalism in Central Asia. Recent scholarship has attempted to assess the threat or non- threat of Islamic revivalism in the region from systemic perspectives, focusing on American foreign policy, general social cleavages in the region, and the societal function of Islamic institutions in Central Asia. However, Uzbeks in Kyrgyzstan have been relatively neglected in terms of interpreting the nature of Islamic revivalism in the region. Using social movement theories, this paper attempts to understand 1) the psychological impact of Uzbek political marginalization in Kyrgyzstan, 2) the relationship between Uzbeks and Hizb-ut-Tahrir, a transnational neo-fundamentalist group, and 3) the implications of these issues for Islamic revivalism in Central Asia. I argue that Uzbek political marginalization may contribute to the radicalization of Islam in Kyrgyzstan and the Ferghana Valley region. Scholarly contributions to this area are necessary to respond accordingly to Islamic neo-fundamentalism in Central Asia. This paper is part of a growing body of research on Uzbek political development in Kyrgyzstan.

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INDIVIDUALISM AND COLLECTIVISM IN THE U.S. AND IRAN: IMPLICATION FOR U.S.-IRAN RELATIONS

The objective of this project is to narrow the gap in the literature regarding international Iran-U.S. relations. Also, this research is the first of its kind to analyze negotiation outcomes in regards to a group's perceptions of the characteristics of the out-group, or the other's particularly in Iranian and American population groups. I am principally interested in the ways that law and policy-making can be effectively applied to building a new approach to foreign policy that is based on diplomacy, negotiation, and legal precepts. Looking at negotiations with the goal of improvement through groups' greater understanding of each other and improved collaboration will result in experimental methodologies that have the potential to pull U.S.-Iran relations forward to match the technological and social advancements of the 21st century.

I used the definitions set forth in Lu (2008) that suggest that the â€œsocial-oriented self involves the conception of oneself as a connected, fluid, flexible, committed being who is bound to others. In addition, morality and self-cultivation are also central to the traditional Chinese self. In sharp contrast to this self view, individual-oriented self involves the conception of the person as a bounded, coherent, stable, autonomous, independent and free entity. These parameters could be applied to the Iranian and American populations in order to implement the use of that data to examine negotiation strategies between these two countries.

The methods/approaches I used were constructivism, social identity theory, "Individual- and Social-oriented Self"□ (ISS) scale, international relations theories, comparative politics theories, and cultural hegemony. I desire to do research that crosses disciplines for which I would use qualitative and quantitative approaches. Therefore, a thorough review of the literature was needed and I would obtain data through integrative research, focus groups, and interviews. Also, I designed experimental methodologies and used discourse analysis to interpret the findings.

In a study on inter-group relations it was found that groups strive for similarity within their own group and differentiation with other groups, and inter-group relations are dependent on people's beliefs about the reality of inter-group-relations: Status, Stability, Legitimacy, Permeability, Alternatives (Social Identity Perspective). In accordance with this study, it seems clear that in order to achieve successful negotiations the two groups must see one another as a member of the same group with similar goals, here are some similarities to begin: both members of the human race, both strive to support historically-wronged people, both justify policy on moral grounds firmly based in the majority religion of the country, both have been significant world powers throughout their own histories.

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LEADER-MEMBER EXCHANGE (LMX) WITHIN EDUCATIONAL INSTITUTIONS

This study focuses on the Leader-Member Exchange (LMX) within educational institutions. The effects of the exchange between leaders and members in terms of their work motivation and task performance are examined. The findings indicate whether LMX within an organization influences not only leaders and members motivation and their task performance, but the main area of focus, the students- 9th through 12 graders.

Two different organizations, more specifically high schools are studied. Within these high schools, “in-groups” and “out-groups” are identified and analyzed.

The goals of this study were to find current LMX relationships that help all leaders and members within an organization through strong work motivation and excellent task performance. In addition to the findings, further research was conducted to aid in bringing improvements to LMX within educational institutions through a literature review.

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GLOBALIZATION OF BUSINESS: THE RELATIONSHIP BETWEEN STUDENTS' WILLINGNESS TO SEEK EMPLOYMENT IN GLOBAL CORPORATIONS AND THE IMPROVEMENT OF INTERCULTURAL SKILLS AND GLOBAL KNOWLEDGE

The purpose of this study is to better understand the effects that globalization of businesses have on students as they prepare to become future employees. In recent years, economies of the world have become more integrated as corporations have expanded business operations globally. As companies increasingly engage in international trade, the need for their employees to understand the countries in which they do business increases as well. Because employees are separated by barriers such as time, language, geography, food, and climate, businesses have higher expectations of their local and international employees. In addition, peoples' values, beliefs, perceptions, and background can also be quite different. Students' international and intercultural experiences may better prepare them for this global economy.

We surveyed 267 undergraduate Business Administration university students. The participants were provided with a questionnaire designed to examine the relationship between international travel, multi-lingual skills, and taking multicultural courses with the intercultural skills and global knowledge that increase the willingness of students to work for a company that does business worldwide.

We found a positive correlation between international travels, completion of multicultural courses, and multi-lingual skills with self-reported intercultural skills and global knowledge. Also, we found that students who have a higher level of intercultural skills and global knowledge are more willing to seek employment with global corporations.

This study provides evidence of relationships between students' experience and skills that are positively connected with the intercultural competence and global knowledge required to succeed in global organizations. This potential interaction is positively related with the willingness of students to seeking employment with global corporations. These results suggest that business schools should develop programs and courses that can bring a better intercultural background and understanding of global issues to students whose intercultural skills and global knowledge may not be developed.

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EX-OFFENDERS IN THE WORKPLACE: EMPLOYEE REACTIONS

Past research has demonstrated that when ex-offenders obtain legitimate employment they are less likely to reoffend. Therefore, lower recidivism rates occur and there is less crime and greater safety: benefiting all of society. However, employers are hesitant to hire ex-offenders for reasons including the effect the hiring decision may have on other employees. This hesitation has contributed to higher recidivism rates, creating a vicious cycle and a serious social problem.

Our study addresses this problem by surveying college students to measure their affective and behavioral reactions to a scenario that includes a co-worker who is an ex-offender. We chose to focus on three specific variables: the crime the ex-offender committed, the gender of the ex-offender, and the physical space in the workplace between the worker and the ex-offender. Based on previous research examining attitudes towards ex-offenders we hypothesized the following: Employees will be more willing to work with an ex-offender 1) who committed a non-violent crime versus a violent one, 2) who is female versus male and 3) who works in a different department versus the same department in the workplace.

Results indicate that employees do favor certain “types” of ex-offenders. Employees are more willing to work with an ex-offender who committed a theft, is female and works in a different department compared to an ex-offender who committed an assault, is male and works in the same department. Additionally, employees are likely to react to an ex-offender in the workplace behaviorally in terms of work effort, turnover and employee voice.

The goal of our research is to add information from the employees’ perspective to the current body of research as an aid in addressing this social issue. More specifically, we seek to provide information to employers so they can make more informed decisions when faced with applicants who are ex-offenders.

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VIEWER PERCEPTION OF PRODUCT PLACEMENT

Marketers have turned to product placement as way of advertising because ad avoidance is at an all time high. Product placement is the intentional or unintentional inclusion of a branded product into an entertainment vehicle by a corporation. This study examines viewer perception of product placement in comedic movies and whether that perception is positive or negative based on the type of product placement used. High plot placements play a major role in the storyline, while low plot placements do not contribute much to the story. We proposed that viewer perception would be influenced by affect and reactance theory. Affect is how the placement makes the viewer feel. This study specifically looked at mood. Reactance is a motivational state aimed at restoring a threatened freedom. Viewers do not have a say in what products are placed in what movie or how often products are viewed within that movie. For this reason we hypothesized that viewers would react negatively to a product placed using high plot placement. A sample of 255 Generation Y college students was surveyed at a Western U.S. University for this study. A pre-survey was used to collect participant's mood, followed by two movie clips and then a post survey to again capture participants' mood and perception of the placement. The results indicated that when the viewers' mood was increased by the comedic movie, their attitude for the brand of the product placement positively increased. This study also found that the type of placement in this situation did not make a difference in the viewers' acceptability of the product placement. The results of this study reveal that although the type of placement may not matter, the mood of the viewer does.

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SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL SCREENING OF APOLIPOPROTEIN-E (APOE) MODULATORS BASED UPON A TRIARYL-SUBSTITUTED PHARMACOPHORE

Apolipoprotein–E (apoE) is a cholesterol- and lipid-carrier protein that has been implicated in aging, atherosclerosis, Alzheimer Disease (AD), and few other neurological and lipid-related disorders. ApoE plays several roles in the body including reverse transport of cholesterol, anti-atherogenic activities independent of lipid homeostasis, blood-brain barrier maintenance, synaptic regeneration, and clearance as well as aggregation of AD-specific neurotoxin. High levels of plasma and brain apoE are risk-factors for AD independent of apoE genotype. We have found new classes of compounds that can modulate apoE gene expression. Two diverse pharmacophore models have emerged through the design, synthesis and screening of small focused libraries. Small molecules based on a tri-aryl substituted scaffold generally described as the "butterfly" model have exhibited cell-line specific modulation of apoE gene expression. The synthesis, characterization and biological study of this class of apoE modulators will be discussed in this presentation.

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CORRELATION BETWEEN *PHYTOPHTHORA CAPSICI* DISEASE RESISTANCE IN PEPPER AND THE PRESENCE OF RESISTANCE QTL*, PHYTO 5.2*

Phytophthora capsici (the pepper blight pathogen) causes some of the most severe disease in pepper, worldwide, by attacking roots, leaves, stems, and fruits. This project involves determining the disease resistance to several different races of *P. capsici* of 45 accessions of *Capsicum* (representing 5 different species) from the USDA *Capsicum* Core Collection and of 23 accessions of New Mexico Recombinant Inbred Lines (RIL) from New Mexico State University, and testing those same accessions for the presence of the *Phyto 5.2* quantitative trait locus (QTL), which one major loci conferring resistance to this pathogen. Two different inoculation procedures one for examining root rot resistance, and one for examining foliar blight resistance were used. USDA accessions were screened against two *P. capsici isolates* and the RILs were screened against fourteen *P.capsici* isolates. The first assay used 10,000 zoospores inoculated into the soil around a seedling. The second assay, a detached leaf assay, used a suspension of macerated mycelia in sterile, deionized water, as droplets that were placed onto the leaves. Differential responses were seen among the accessions and different isolates of the pathogen elicited different patterns of response for USDA and RIL accessions. Current results show the disease resistance for each RIL against each isolate is positively correlated (correlation coefficient, r^2) with the presence of the *D04-SCAR* marker to be as high as $r^2 = 0.875$ and $r^2 = 0.750$. Amplification of the diagnostic band has been seen in several accessions showing size differences in the *DO4-SCAR* marker among the pepper accessions. This result was unexpected and will be further investigated via cloning and sequencing; it is possible that the size of the *Phyto 5.2* QTL varies among species. Further research will allow us to determine the influence of the *Phyto 5.2* QTL on resistance to *P.capsici*.

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A CANDIDATE GENE STRATEGY TO IDENTIFY RESISTANCE GENES IN PEPPER TO PHYTOPHTHORA CAPSICI

Phytophthora capsici is a deadly soil-borne disease that is responsible for root rot and crown blight of bell and chile pepper. It also affects tomatoes, cucurbit crops, and many other species. There is no major commercial variety of pepper that shows resistance to a majority of the pathogen isolates. Our project investigates the genetics of resistance against P. capsici through the use of a candidate gene strategy. A candidate gene is a gene suspected of being involved in the expression of a particular trait. We are using previously cloned resistance genes from other members of the Solanaceae family as candidate genes for quantitative trait loci (QTL) that confer resistance to P. capsici. PCR amplification of DNA from our two mapping parental plant lines can detect differences, or polymorphism, between the two lines. Analyzing these polymorphisms in the progeny lines will indicate where the candidate genes are located. After conducting multiple searches on GenBank for potential candidate gene DNA sequences, primers were designed that have amplified those sequences, including the resistance genes Pto, Mi, and Cf-9. Amplification has been achieved for all primer pairs, and polymorphisms between parental lines are currently being sought. Amplicons that are monomorphic in size on a gel will be cloned and sequenced to identify any single-nucleotide polymorphisms. Sequence data has been obtained for all three genes and both parents and efforts are underway to design simple SNP detection systems for mapping. Polymorphic candidate genes will be placed into the pepper molecular genetic linkage map by amplification of the same genes in a segregating recombinant inbred line population. If any map to the same location as any of our previously identified resistance genes, then there is a high likelihood that the candidate gene actually confers resistance to P. capsici.

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DNA RECOGNITION OF THE ESCHERICHIA COLI cAMP RECEPTOR PROTEIN

The cAMP receptor protein (CRP) is a global transcriptional regulator in Escherichia coli. CRP is activated by the biding of cAMP and recognizes specific DNA targets via a helix-turn-helix motif. The F-helix in the motif consists of six amino acids: Arg180, Glu181, Thr182, Val183, Gly184 and Arg185. Arg180, Glu181 and Arg185 have been well studied for their role in DNA recognition. In this project, we evaluated the contribution of the other residues to DNA binding. We totally randomized the codons for Thr182, Val183 and Gly184 (albeit separately) of crp cloned in an expression vector to generate the pool of plasmids and then transformed the plasmid pool into a CRP reporter strain. This allowed us to functionally classify all the mutants altered at each position into three categories based on their colony color: bleu, wild-type level highly active; light blue, somewhat active; white, dead. Several plasmids from selected blue colonies were isolated and then sequenced to reveal causative mutations. At position Thr182 Leu, Ser and His substitutions resulted in wild-type like phenotypes. Since these three amino acids are different in size, and polarity, this suggests that position Thr182 is not critical for DNA binding. Similarly at position Val 183 Thr and Ala substitutions resulted in wild-type like phenotypes. Both amino acids are non-polar while different in size, implying that having non-polar at this position might be important for DNA binding. On the other hand, at position 184 only Gly provided wild-type phenotype, suggesting that Gly is critical at the position for DNA binding. Our results show that even non-DNA contacting residues can provide an important context to the F-helix for DNA binding, as demonstrated by the Gly184 case.

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ANTI-ANGIOGENIC EFFECTS OF ZOLEDRONIC ACID ON BREAST CANCER AND BONE METASTASES

Bone is the most common organ for tumor metastasis in breast cancer patients. Currently, a class of drugs called bisphosphonates is a main-stay of cancer treatment known to reduce or delay bone destruction, as well as induce apoptosis if cancer cells in vitro. Recent literature has indicated that Zoledronic Acid (ZOL), the most potent nitrogenous bisphosphonate, not only induces apoptosis, but also inhibits angiogenesis (formation of new blood vessels), which is crucial for cancer cell survival. We are using MDA-MB-231P cells (an invasive breast cancer cell line from a primary tumor) and MDA-MB-231 BO (osteotropic MDA-MB-231 cells) to further investigate the anti-angiogenic effects of ZOL.
Previous results have shown that MDA-MB-231 BO is more sensitive to ZOL cytotoxicity than MDA-MB-231P. Differentially expressed proteins of both cell lines, before and after ZOL treatment, were identified by MALDI-TOF mass spectrometry. Vasohibin-1 and Prolyl Hydroxylase-2, both angiogenesis inhibitors, were upregulated in response to ZOL. We have also analyzed RNA levels for various proteins known to be involved in promoting angiogenesis: Cysteine rich protein 61, Chemokine receptor type 4, Vasohibin 2, Caveolin-1α;, Caveolin-1β; and integrin α;vβ;3, which were all downregulated after ZOL treatment. All of these results further support the working hypothesis that ZOL suppresses angiogenic signals from breast cancer cells. Future directions include profiling both lysates and secretome for some of the above proteins by immunopreciptation and immunoblotting, silencing expression of these proteins, and performing invasion assays to test how the cells respond to ZOL.

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OPTIMIZING A DIFFERENTIATION STRATEGY FOR GENERATION OF EMBRYONIC STEM CELL-DERIVED CARDIOMYOCYTES

Embryonic Stem Cells (ESCs) are group of unspecialized cells that are derived from the inner cell mass of a blastocyst. These cells are capable of self-renewal and differentiation into all cell lineages (eg cardiomyocytes). ESCs can be maintained in un-differentiated state, in-vitro by culturing in presence of leukemia inhibitory factor (LIF). Removal of LIF and culturing stem cells in hanging drop culture method leads to aggregation of cells and eventually to the formation of Embryoid Bodies (EBs). These cells derived from ESC differentiation are precursor cells resembling initial stages of embryonic development. In our previous studies we established, in-vitro differentiation of ESCs to homogeneous EBs using the hanging drop culturing method resulted in formation of cardiomyocytes (CMs). These cardiomyocytes are precursor cells that undergo further development to generate multi-nucleated fibers known as myotubes formed by fusion of myoblasts, which are strong indicator of formation of functional heart. The preliminary goal for the project was to establish a working protocol for generation of pluripotent J1, mouse embryonic stem cells (mESCs) and subjecting them to hanging drop culturing method for differentiation. Then further we defined the key differences in growth of EBs in bacteriological vs low adherent petri-dishes (a different culture method contrary to traditional method). It was shown that mESCs when subjected to attachment mediated differentiation by culturing in tissue culture dishes in evidently formed cardiomyocytes. The EBs subjected to growth in bacteriological dishes resulted in formation of uniform circular EBs and the EBs subjected to growth in low adherent dishes formulated non-uniform but larger EBs. However, when EBs from either culture method were transferred to tissue culture dish, formation of cardiomyocytes was evident within 7 days. The next logical step in the course of the study is to verify the presence of cardiac precursor cells by analyzing the expression of cardiac genetic markers using RT-PCR analysis. The gene expression analysis will be conducted using cardiac (Connexin 43/45 & Nkx2.5) and embryonic (Nanog, CD44 & Oct-4) cell surface markers for four distinct stages of cardiomyocyte differentiation: mESCs, EBs, cardiomyocytes, and myocardial tubes. The embryonic stem cell markers should be highly expressed in early stages , while the cardiac specific marker should be expressed in late stages. To further extend this project, we will be analyzing the conditioned media from mESCs using proteomic techniques. This will enable the potential discovery of biomarkers for embryonic development of ESCs to help identify a stem cell based therapeutic target.

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PREVALENCE OF BAYLISASCARIS PROCYONIS (NEMATODA: ASCARIDIDA) IN PERI-DOMESTIC RACCOONS (PROCYON LOTOR) FROM STANISLAUS COUNTY, CALIFORNIA

The objective of this study was to determine the prevalence and intensity of infection of the ascarid nematode Baylisascaris procyonis in its definitive host, the raccoon, in Stanislaus County, California. Raccoons were captured and euthanized from December 2006 – August 2007, in immediate proximity (within 3.05m) of human habitation; these mammals were responsible for damage to structures or vegetation, or for directly threatening humans, domestic animals or livestock. Nematode eggs shed by raccoons in feces are infective to humans and other animals, and B. procyonis larvae migrating within these intermediate hosts may cause serious neurological pathogenesis (neural larva migrans, NLM).
Adult B. procyonis occurred in 75 % of raccoons (n = 20), with a mean intensity of 16.8 nematodes/raccoon, with a 2 -148 worms in infected hosts. No previous study has reported B. procyonis in central California; the values for prevalence and intensity were high in comparison to previous reports from elsewhere in the United States, and represent significant public health concern where direct or indirect contact with raccoons and their feces is likely.

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GEOCHEMICAL CORRELATION OF RICARDO VOLCANICS, CALIFORNIA, AND SUMMIT RANGE VOLCANICS, CALIFORNIA

The Ricardo volcanic field and the Summit Range volcanic field are located on opposite sides of the Garlock Fault in southeast California. They both have visual and structural similarities, suggesting that they were part of the same volcanic field before being offset by the fault. The use of this relationship has helped approximate the displacement of the Garlock Fault. The objective of this study is to provide a chemical analysis of the two fields to determine if they were in fact part of the same volcanic field.

Analysis of the Ricardo and Summit Range volcanic fields encompassed sampling of volcanic rocks from the respective areas. Data of previous chemical analysis of Ricardo samples were obtained from California State Polytechnic University, Pomona. Samples were gathered from the Summit Range and brought to California State University, Fresno for x-ray fluorescence analysis to determine weight percentages of major oxides. These percentages were compared with the weight percentages from the Ricardo volcanic samples.

Rocks from the Ricardo volcanic field had weight percentages of silica between 49-53%, characterizing them as basalts to basaltic andesites. Rocks from the Summit Range held higher weight percentages of silica ranging from 52-74%, characterizing them as basalts, basaltic andesites, andesites, daicites, and rhyolites. The measured weight percentages of the major oxides from the Summit Range samples were plotted against the weight percentages of silica oxide found within the same samples. As the weight percentage of silica oxide increased, the weight percentage of major oxides either increased or decreased in a linear trend. This linear feature indicates evolution of the magma source over time, and that multiple eruptions occurred over different times from the same magma source. Weight percentages of major oxides from Ricardo volcanic samples plot on the trend line, at lower silica weight percentages. This indicates Ricardo erupted from the same magma source when the magma was at a primitive state.

To conclude, Ricardo volcanics and Summit Range volcanics are not entirely the same, but they show a trend that represents the evolution of a common parent magma source. Possible trace element analysis may be used to confirm this relationship.

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SUBSTRATE VARIATIONS AND ITS RELATIONSHIP AND IMPACT ON THE DISTRIBUTION OF EELGRASS BEDS IN GRIFFIN BAY, WASHINGTON

Eelgrass is considered an important indicator species for the health of the oceans; it provides nearshore habitat to many marine organisms and also acts as a source of protection for migrating populations of juvenile salmon and other fish species including forage fish. Since the late 1980s, there has been a drastic decline in eelgrass beds within the surrounding marine areas of Washington State; specifically in the species Zostera marina. Previous studies have focused on potential impacts such as bacterial infections and loss of sunlight from docks, shoreline tree canopy overgrowth and permanently anchored boats. In specific locations, sawmill waste has prevented the regeneration of eelgrass. In this study, sediment samples, along with video transects, were collected from Griffin Bay, Washington, located within the San Juan Archipelago to determine if substrate conditions have any impact on the distribution, appearance, disappearance, and health of the eelgrass beds. Initial findings indicate that in fact, eelgrass is increasing with growth beyond the area in which their distribution was previously documented. This is in contrast to other areas where eelgrass is in decline. Final results have yet to be analyzed.

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AGE CONSTRAINT AND DEGREE OF METAMORPHISM OF THE TURTLEBACK COMPLEX ON ORCAS ISLAND, SAN JUAN ISLANDS, WASHINGTON

The Turtleback Complex located on the western limb of Orcas Island, Washington has been structurally altered, intruded by bodies of igneous material, and highly weathered. The tectonic setting of the San Juan Islands has been relatively stable since Late Jurassic (Brandon et al., 1988). Small areas of Turtleback have been age dated at 417 Ma using U-Pb radiometric zircon age dating (Brown 2010). The purpose of this study was to determine the degree of metamorphism and identify the protoliths of this complex. Petrographic microscope mineral identification confirms that the rocks are metasedimentary, metavolcanic, and intrusive. Mineral assemblages in these rocks demonstrated a low-grade metamorphism of amphibolites facies. The geochemical analysis of major oxides indicates a high level of Fe, leading to the conclusion that the metavolcanic rocks could be very close to mantle source. The major metamorphic event affecting this terrane, would have occurred some 200 million years before the islands were in their current position. Future work is planned to constrain the age of the protoliths and metamorphic event.

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VERTICAL OZONE TRANSPORT IN THE LOWER ATMOSPHERE AND ANALYSIS OF HISTORIC POLLUTION DATA

Ozone is a harmful secondary pollutant in the troposphere produced mostly during the day when there is a photochemical reaction in which primary pollutant precursors such as nitrous oxide (NOx) or volatile organic compounds (VOC's) mix with sunlight. In Fresno, regulatory state and national standards of ozone are frequently exceeded. Understanding vertical transport of ozone in the boundary layer is critical toward improving accuracy of regional ozone forecasting. In addition to local production and horizontal transport of ozone by wind, vertical ozone transport, particularly the down-mixing of ozone in ozone-rich layer in the atmosphere, is one of the major mechanisms contributing to ozone accumulation at the surface. The main objective of this study was to characterize vertical ozone transport over Fresno and to analyze historical ozone data in order to determine trends in spatial and temporal variations at select locations in San Joaquin Valley. Historic pollution data was collected at select sites in order to relate variations in pollutant concentration to the meteorology of that area. The vertical profile measurements were made at the University dairy farm in the summer of 2010 over a one week period. Preliminary results of the ozone profile measurements have shown unusually high concentrations of ozone at various altitudes, which may be attributed to VOC emissions from the site. We also noticed concentration changes in response to the daytime boundary layer evolution. For the pollutant data analysis, ozone exceedance days were relatively high for all years. As expected, monthly exceedance days exhibited the highest number of days in the summer months of June, July, August, and September for all years weekly averages revealed Saturday as having highest number of exceedance days. The meteorological data is currently being analyzed, but we expect to see changes in pollutant concentrations in response to meteorological factors.

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STAFF TRAINING PROTOCOL TO INCREASE INTERACTION DURING NON-STRUCTURED TIME WITH CHILDREN WITH AUTISM

Lack of social interaction is one of the defining characteristics of autism. Children with autism often need prompts to socialize with peers and engage in appropriate play. The purpose of the current study was to increase the quality of staff interaction with children with autism during non-structured times, such as outdoor play or breaks, in an intensive early intervention program. During non-structured time, therapists would accompany the children to whatever location was involved, such as a playground or enclosed area. Here interactions would be observed and data was taken on the amount of interactions during a prescribed interval. A multiple baseline across subject design was used to measure the effects of a tactile device, feedback /goal setting, and public postings on therapist interactions with children. Results indicated that some behavior therapists showed a marked increase in the amount of interaction with children when using the tactile devices, while others showed a more slow and modest gain. In order to prompt therapist for higher interaction during non-structured times, public posting was introduced. Results are mixed but indicate an overall trend of increasing interaction.

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Poster Board No. 2

IS 87 OUT OF 10,000 "RISKIER" THAN 0.87 OUT OF 100?THE ROLE OF DENOMINATOR NEGLECT IN THE RATIO BIAS

Yamagishi (1997) conducted a study in which participants were given a questionnaire listing various causes of death and the number of people who die from that cause (the "numerator") out of every 100 people or every 10,000 people (the "denominator") and then judged the riskiness of each cause on a 25-point scale. He found that they judged the riskiness as greater when the numerator and denominator were greater—even when the ratio of the two was slightly lower. This is referred to as "ratio bias." One explanation for this phenomenon is that people ignore the denominator and focus on the numerator. However, we hypothesized that Yamagishi's participants neglected the denominator partially because it was not very salient. It was presented only in the instructions of his questionnaire, not along with each cause of death. To test this, we replicated his study using denominator size (100 vs. 10,000) and denominator location (instructions only vs. repeated with each cause) as independent variables. We also measured participants' perceived mathematical ability and their optimism. We hypothesized that participants would exhibit ratio bias in the instructions-only condition but not in the repeated condition. We did replicate the ratio bias, with participants' judging the causes of death to be riskier when the denominator size was greater. However, participants exhibited the ratio bias regardless of whether the denominator was presented in the instructions only or with each cause of death. Neither numeracy nor optimism was related to participants' riskiness judgments. We conclude that ratio bias depends little on how strongly the denominator is emphasized. It seems that participants in all conditions simply convert the numerators directly to the 25-point scale. Ratio bias itself occurs because participants' initial ratings are affected slightly by numerator value, and they make the rest of their ratings relative to this anchor value.

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Poster Board No. 3

STRESS AND ANGER AS PREDICTORS OF DEPRESSION IN MULTI-CULTURAL COLLEGE STUDENTS

The expectations placed upon young adults entering higher education has increased throughout the decades. College students in ethnic minority groups, such as Mexican American and Hmong, encounter the stressors experienced by all college students and are likely to experience stressors associated with acculturation. These students, in addition to racial minorities, are also at risk of experiencing stressors associated with prejudice and discrimination. Acculturative stress and stress due to prejudice are likely to be associated with anger-related emotions and moods. Past research has indicated a strong correlation between both anger and stress at predicting depression, however little research has been conducted on this relationship in a multicultural community. We hypothesized that ethnic minority students would report different stressors than non-minority students and have higher scores on measures of anger, stress, and depression. We expected the correlations between anger and stress in predicting depression to remain positive in all ethnic groups.

Introductory Psychology students are currently completing an online survey containing the College Adjustment Scale (CAS) (which measures many life stressors, depression, and anxiety) and measures of anger and acculturation . The campus community has the following demographic characteristics: 32% White, non-Hispanic; 36% Latino, primarily of Mexican descent; 14% Asian, the majority of which are of Hmong descent; 5% African-American, and about 12% other or unknown. The population of students who take Introductory Psychology reflect campus demographics, with a slightly higher proportion of White, Non-Hispanic students, who are more likely to enroll as Freshmen, and thus take Introductory Psychology.

At this writing, we are currently in the process of collecting data and have collected data from 9 participants; 44% of whom are non-Hispanic white and 56% of whom are from ethnic minority groups. We have not conducted statistical tests, but intend to do so upon the completion of data collection which should be mid-March.

In the poster, we will report the results of statistical tests of hypotheses. Results will be discussed in terms of implications for student retention and success.

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DOMAIN-SPECIFIC CRITICAL THINKING AND RELIGIOUS BELIEFS

Previous research has revealed that critical thinking is domain specific, particularly evident in specialty areas of knowledge (Gray & Mill, 1990). Previous research has also shown that specific subscales of superstitious beliefs and critical thinking are negatively correlated (Morgan & Morgan, 1998). More specifically, the critical thinking subscale 'inference' is thought to be negatively correlated with religious belief. This study is designed to measure the possible correlation between Christian religiosity and critical thinking and to extend the knowledge about the correlation between the two. Specifically, this study investigates the significance of the critical thinking subscale 'inference' to Christian religious beliefs.

This study investigated the relationship between domain-specific critical thinking and strength of Christian religious beliefs in 75 undergraduate students. This was investigated by administering the Watson-Glaser Critical Thinking Appraisal and two religiosity scales: the Santa Clara Strength of Religious Faith Questionnaire and the Shortened Post-Critical Belief Scale. Because Christianity is the dominant theological belief system in Fresno as well as the United States, this study focused on Christian theology for its measurement of religiosity. Participants received one unit of credit toward their Psychology 10 research requirement. Although the religious belief questionnaires and critical thinking tests were kept together according to participant number, the participant's identities remained anonymous and this study is considered to be minimal risk research. In order to minimize risk, the participants were made aware of their right to withdraw from the study at any point without penalty.

Preliminary results of the data do not show a significant correlation between 'inference' and religious belief, contradicting previous research. More analysis of the data is necessary.

More studies are needed to evaluate the relationship of each critical thinking domain to religious belief.

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FORMATION OF FALSE MEMORIES THROUGH SCHEMATIC INTERFERENCE AND THEIR INFLUENCE ON SOCIAL JUDGMENT

How are judgments of social events influenced by implicit or "subconscious" memories? Past research has shown that human judgment and memory can be prone to outside influence (Alba & Hasher, 1983; Bartlett, 1932; Greenwald & Banaji, 1995). There is also a strong link between memory recall and judgment (Moser & Katz, 1992). Memories can be warped and distorted at recall due to interference from many outside factors, one of which is "schemas" or generalized knowledge of concepts acquired through repeated exposure (Alba & Hasher, 1983). These schemas interfere with the actual memory of events and can cause people to fill in gaps with information that is not true to the event but instead is associated with the schema.

It is hypothesized that people's judgments of social scenarios can be manipulated through subtle exposure to social schemas which will distort recalled memories which will in turn influence judgment to be congruent with the primed schema.

The authors plan to use a word search puzzle composed of either pro-social, anti-social, or neutral words as a covert priming (influencing) tool. Participants will then be given an ambiguous text scenario of a person quietly entering a home, followed by a distractor task of a short math quiz for two minutes to clear their working memory. Finally participants will be asked to write ideas pertaining to the text (Bransford & Johnson, 1972). Recalled items will then be scored per idea unit (short strings of words representing a particular idea) to see if the prime conditions resulted in more idea units mirroring the priming condition. Data collection is planned for March, 2011.

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NON-RELIGIOUS ATTRIBUTIONS TO AMBIGUOUS SITUATIONS

Research on non-religious believers suggests that these individuals see themselves as using a more rational attributional process than religious believers. These results suggest that non-religious believers see themselves as only using attributions that are deemed to be rational and observable. The present study examined whether there is a difference between how religious and non-religious believers attribute a cause to an ambiguous situation. Two types of attributions were examined in this study. The first type of attribution examined was a primary attribution. This is a participant's initial attribution to a situation. Research has found that these attributions involve observable aspects of the situation. The second type of attribution examined was a secondary attribution. This is an attribution made when the participant is asked for another cause to the situation. Research has indicated that these attributions often involve metaphysical concepts. The present study asked whether non-religious participants would use metaphysical attributions as a secondary attribution to an ambiguous situation.

Past research has indicated that participants are more likely to use metaphysical attributions as secondary attributions when the outcome is life-altering. This study addresses secondary attributions where there is no life-altering outcome. The independent variables were religiosity and locus of control. The dependent variable was the type of attribution used as a secondary attribution. A random sampling procedure was used to select 300 participants from California State University Fresno. The results were interpreted using a logistic regression model.

Results showed a difference between religious and non-religious believers secondary attributions. Non-religious believers were more likely to use non-religious metaphysical attributions as secondary attributions. Religious believers were more likely to use religious attributions as secondary attributions. These results suggest that regardless of one's religious faith, people are likely to use metaphysical attributions that fall in line with their religious beliefs as a secondary attribution.

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FRESNO COUNTY BEHAVIORAL HEALTH COURT PROJECT

Behavioral health courts (BHCs) are a relatively new form of diversionary courts designed to deal with mentally ill offenders by pairing judicial oversight with community-based treatment plans. The current project is designed to evaluate the efficacy of the Fresno County Behavioral Health Court. The Fresno County BHC is a post-conviction court and accepts only non-violent offenders with an Axis I diagnosis. Those convicted of sex offenses, drug sales and distribution as well as those represented by a private attorney are excluded.

Preliminary results indicate a high occurrence of schizoaffective disorder and schizophrenia within the current group of clients. Three clients have committed a major re-offense and have been terminated from the program. Of the remaining clients, although all have violated the conditions of their probation on at least one occasion, they are succcessfuly meeting the conditions of probation and are on track to complete the program.

Despite the small number of clients in the court, our preliminary results suggest that the Fresno County Behavioral Health Court is effective is reducing recidivsm for clients with severe mental illness.

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INTERDISCIPLINARY PERSPECTIVES ON WHAT FACILITATES TIMELY REFERRAL TO PALLIATIVE CARE FOR CHILDREN WITH SERIOUS ILLNESS IN FRESNO, CALIFORNIA

The problem of inadequate access to end-of-life care services for children diagnosed with a serious illness was explored. This interdisciplinary study integrates national pediatric initiatives for the provision of concurrent curative and palliative care, with regional needs as informed by this study's survey results. The objectives were to characterize what fosters timely and equitable access to services, and to understand providers' conceptualizations of end-of-life care so that service-gaps can be addressed. More than 500 low-income families who could be eligible to use a 2011 Medi-Cal waiver face an annual community capacity of 25 families.

The 148 respondents to the online survey were experienced social workers, nurses, and allied health professionals who encounter children with serious illness. Half reported an accurate understanding of the pediatric difference in palliative versus hospice care, but most used adult conceptualizations when rating the importance of services through the course of illness. Short courses on end-of-life communication skills were reported as a most likely sought continuing education format. Common themes from open-ended responses on how to improve access to services included: provider education, timely referral, diversity of staff, and inter-organizational collaboration. Next steps needed in research were described. The implications for social work practitioners to serve as a multi-system communication bridge were discussed from the basis of the profession's core values of social justice, an empowerment perspective and cultural competency.

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An Exploratory Study On Social Workers' Attitudes And Practices With Gay And Lesbian Clients

Research indicates social workers are less homophobic now than ever before. Very little research, however, has assessed the practice of social workers or has investigated the relationship between attitudes and practice. This exploratory study examined the relationship between attitudes and practice, and assessed the level of prejudice and gay affirmative practice of social workers. One-hundred forty social workers from five divisions within the Fresno County Department of Social Services completed the Attitudes Toward Lesbians and Gay Men scale, and Gay Affirmative Practice scale. Correlation coefficients were run between attitude and practice scores. Inferential statistics examined the affect age, gender, education, and experience levels had on attitude and practice. Results found a strong relationship between positive attitudes toward gays and lesbians, and gay affirmative practice. Overall, attitudes and level of gay affirmative practice were found to be positive. Although only marginally significant, older participants were found to have less positive attitudes toward gay men than younger participants. Among participants with social work degrees, Bachelor's level participants had less positive attitudes toward lesbians than Master's level participants. Participants with advanced levels of expertise or leadership experience were found to engage in gay affirmative practice behaviors more often than entry-level participants. However, these findings were also found to be only marginally significant. Gender and position level were not found to have an impact on attitudes or practice. Further research is needed to explore how age, education, and experience impact attitudes and practice with gay and lesbian clients. Data that is not self-reported, such as the perspectives of gay and lesbian social workers and gay and lesbian clients, should be gathered to confirm the positive outcomes found in this study.

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VIETNAMESE AMERICANS' COMMUNICATION ASSERTIVENESS AND HOW THEY PERCEIVE THEIR PARENTS DISCIPLINARY STYLES

The purpose of this study was to examine: (1) assertiveness in young Vietnamese adults, (2) how young Vietnamese adults perceive their parent's parenting styles (authoritative, authoritarian, or permissive), and (3) the correlation between assertive communication style and perceived parenting style. The participants (N = 59) were Vietnamese Americans between the ages of 18 to 25. The College Self-Expression Scale (CSES) was used to measure communication assertiveness and the Parental Authority Questionnaire (PAQ) to measure parents' perceived parenting styles. Young Vietnamese Americans were more assertive in comparison with Latinos, less assertive in comparison to Whites and were on the same level of assertiveness as other Asians. Young Vietnamese Americans perceived their parent's parenting styles as authoritarian (as opposed to permissive or authoritative/flexible). There was a consistent modest negative correlation between assertiveness and perceived authoritarian parenting style; however, these correlations did not reach statistical significance.

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EXPLORING IMPULSVITY AND INHIBITION IN INIVIDUALS WITH TRAITS OF INTERMITTENT EXPLOSIVE DISORER AND PSYCHOPATHY

Intermittent Explosive Disorder (IED) has been diagnosed in a wide range of people in the American population today (Ferguson, 2006). Persons with IED exhibit repeated episodes of anger and aggression that are disproportionate to the presenting situation. Compounding their behavioral problems are inhibition deficits that result in higher levels of impulsivity. Individuals with psychopathic personality traits also display high levels of impulsivity (Blair, Mitchell, Peschardt, Colledge, et al., 2004). This study seeks to determine the ways in which people with IED tendencies and those with psychopathic traits differ on a stop/go task with emotional stimuli. The two main hypotheses in this study are 1) that individuals who have traits of IED and psychopathy will have increased impulsivity and decreased ability to inhibit their response to stimuli that convey angry facial expression, and 2) individuals with psychopathic traits will demonstrate a decreased ability to inhibit their responses than individuals with IED relative to emotional stimuli that convey facial expressions of sadness. The participants complete an Anger Attacks questionnaire, a Psychopathic Personality Inventory (PPI), and will perform a stop/go task that will be developed using sad and angry faces in order to test participants' impulsivity and inhibition deficits. The results of the study will have implications for the diagnostic validity of emotional syndromes involving clinically significant anger. Results will demonstrate how these populations differ in an introductory psychology course at California State University, Fresno.

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DOES EXAMINING COGNITIVE STYLES ASSIST IN THE DEVELOPMENT OF INTERVENTIONS FOR IMPROVING MEANING IN LIFE? A PRELIMINARY ANALYSIS

The role of avoidance coping is well-documented in its negative effects on psychological and health outcomes (Hayes et al, 1996). Recent psychological interventions have focused directly on addressing avoidance coping through a variety of mechanisms, such as mindfulness meditation and behavioral activation (Hayes et al, 2006). The exact mechanisms of action in avoidance coping, however, are less understood and may relate to social psychology constructs such as the need for cognition and the need for cognitive closure. The present study examines the relationship between avoidance coping, negative automatic thoughts, the need for cognition and cognitive closure among 125 male and female undergraduate students. Results indicate that individuals who endorse higher need for cognition, report less avoidance coping and higher presence of meaning in their lives, and that avoidance coping serves as a mediator between the need for cognition and the frequency of negative thoughts. Implications for the development of interventions are discussed.

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Poster Board No. 13

SOCIAL ANXIETY: EVALUATING THE IMPACT OF PSYCHOLOGICAL FLEXIBILITY ON EMOTION REGULATION AND MEANING IN LIFE

Individuals affected by social anxiety develop coping mechanisms (emotion regulation strategies) as a means of managing their anxiety. Current research demonstrates that cognitively reappraising and suppression are two coping strategies employed that may increase physiological reactivity in stressful situations (Lam et al., 2009). Cognitive reappraisal is often considered an efficient emotion regulation strategy. However, contemporary models view both emotion regulation strategies as avoidant behavior and thereby problematic in a socially anxious individual. This study evaluated the relationship between cognitive reappraisal and meaning in life, as well as the possibly additive role of psychological flexibility in understanding this relationship. Two emotion regulation strategies, cognitive reappraisal and expressive suppression, were examined in their relationship to meaning in life and psychological flexibility, and the mediation of psychological flexibility was examined in socially anxious and non-anxious individuals. Results indicate that in both general and socially-anxious individuals, psychological flexibility may play a mediating role in the relationship between cognitive reappraisal and meaning in life. Implications for this finding in the development of interventions for socially anxious individuals are discussed.

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Poster Board No. 14

EFFECTS OF ACCULTURATION ON MARITAL SATISFACTION IN ELDERLY MEXICAN-AMERICAN COUPLES

This study examines the relationship between marital satisfaction and levels of acculturation in Mexican American couples over the age of 65 who have been married for over 25 years. Since Mexican Americans have become the largest ethnic minority group in the United States and with this growing population also comes a growing clinical population, it is important to examine how acculturation may affect various aspects of their lives. Studying the effects of acculturation on marital satisfaction is important in understanding relationship dynamics of Mexican American couples in a clinical setting. Based on previous research, the following hypotheses were developed: Mexican-American wives will have lower levels of acculturation than their husbands, Mexican-American wives will be more satisfied with their marriages than their husbands, less acculturated Mexican-American couples are more satisfied with their marriages than more acculturated couples, and couples with a higher variance in acculturation between husband and wife will be less satisfied with their marriages than couples with lower variance in acculturation.

Participants were tested using the Los Angeles Epidemiologic Catchment Area (LAECA) scale to assess levels of acculturation and the Quality of Marriage Index (QMI) to asses levels of marital satisfaction. Participants were given the tests in either English or Spanish depending on their language preference. Although preliminary data (N=4) suggest that marital satisfaction is independent from acculturation, the limited sample size requires ongoing data collection to truly test our hypotheses.

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AN ANALYSIS OF FORCED-CHOICE PREFERENCE ASSESSMENT CHANGES OVER TIME

Only one study has been conducted to assess variations in preference for stimuli, and it has involved developmentally disabled adults and children as participants. The focus of this study was to examine preference variability in a typically developing child. Seven leisure items were evaluated using a paired-stimulus forced-choice assessment (Fisher et al., 1992) with a 7-year-old participant. The results of the preference assessment showed that one item stood out among the rest, being selected every time it was presented throughout all six sessions. Out of seven total stimuli, including the most preferred item, three stimuli showed consistent preference by the participant across the six sessions. This demonstrates the findings that paired-stimulus forced choice assessments can identify a potentially successful reinforcer.

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Poster Board No. 16

BMAA, A GLUTAMATE AGONIST, AFFECTS WALKING PERFORMANCE OF FRUIT FLIES THROUGH THE CENTRAL PATTERN GENERATOR

BMAA (beta-methylamino alanine) is an environmental neurotoxin and glutamate agonist. Glutamate is a major neurotransmitter in insects: in the peripheral nervous system, it is the main neurotransmitter controlling muscle contractions; in the central nervous system, it modulates the actions of the central pattern generator. Based on previous studies we predict the following effects of BMAA on the flies' walking behavior: in the peripheral nervous system, increased excitation of the muscles will lead to loss of fine motor control, which will lead to loss of climbing ability and more missteps. In the central nervous system, BMAA should increase walking speed and walking activity levels [walking more often and/or longer; higher walking distance]. In our experiments we fed adult fruit flies BMAA at three different concentrations over a period of four days. We then recorded their walking behavior for 10 minutes each day to quantify differences in walking distance, speed, activity levels, and climbing ability. After the first day of treatment, we observed no significant loss of motor ability in flies treated with the two lower doses, but these flies showed an increase in walking speed and walking activity whereas high-dosage flies showed a low walking speed and distance, walked less often, and lost their climbing ability. After the third day of treatment, the low-dosage flies lost motor ability: their walking distance and speed dropped, and the flies had increased missteps in attempts to walk onto the ceiling. From our data we can conclude that activity parameters that are controlled centrally respond significantly to BMAA at lower doses compared with parameters controlled by the peripheral system (climbing ability; missteps).

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DIVIDE AND CONQUER: IDENTIFICATION AND VALIDATION OF MINIMAL DOMAINS OF CED-4 TO INDUCE CELL DEATH IN *Meloidogyne incognita*

Plant Parasitic Nematodes (PPNs) have been the major parasites of concern for agriculturists and scientists as they cause annual estimated monetary losses of 157 billion dollars worldwide. *Meloidogyne incognita* (*M. incognita*) is a PPN of primary concern as it alone can infect more than 2,000 plant species. Though chemical nemacides have been successfully used to control PPNs, these chemicals are toxic. Program Cell Death (PCD) mechanism is the cell's natural suicide program which also includes the disassembling and removal of dead cells. In *Caenorhabditis elegans* (*C. elegans*), which is a model nematode, PCD mechanism has three main phases. The first phase is specification phase; in which cell get the signals to start the PCD mechanism. In second phase, the killing phase, apoptosis is activated in the target cell and in the third phase called execution phase cell are disrupted and the inner material of dead cell is eaten away by surrounding cells. There are various proteins essential for the PCD process in *C. elegans*. Among these CED-3, CED-4 and CED-9 are most important. Knowledge on the PCD mechanism in *C. elegans* was used to test if it could be used to control PPNs; the CED-4 protein, a major player in the natural PCD of *C. elegans*, was found to cause increase in cell death rate in *C. elegans* and *M. incognita* when these nematodes were exposed to it. Our hypothesis is that "minimal binding domains of CED-4 are sufficient to induce death in *M. incognita* J2 nematodes". Starting from the three-dimensional structure of CED4 and using a variety of informatics tools, 19 peptides were generated that cover the full length of the intact CED-4 protein. Interactions of CED-4 with itself, CED-3, CED-9 and ATP were generated using *in silico* approaches. Based on these interactions and using a cumulative conservation score peptides were ranked using ratio analysis of number of interactions per total length of a given peptide. *In silico* generated peptide fragments provide the first step towards validating this approach with *in vivo* assays that are currently in progress.

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QUANTIFYING THIOL LEVELS IN CYANOBACTERIA UNDER VARYING METAL STRESS

As a result of increased run-off from commercial and agrarian sources, the amount of metal ions in watersheds has been increasing with negative effects on aquatic organisms specifically cyanobacteria. In order to cope with the metal stress, cyanobacteria employ thiols which may chelate metal ions. In this study, thiol levels were measured in freshwater cyanobacteria and marine cyanobacteria treated with metals, such as copper. Thiols were extracted in the dark and labeled with the fluorescent alkylating agent monobromobimane. The labeled thiols were separated with High-Performance Liquid Chromatography (HPLC) and concentrations of thiols determined using standards of known thiols. HPLC analysis revealed greatly elevated levels of thiols in the copper treated samples. In the freshwater strain, treatment with copper results in a two fold increase in ergothioneine levels, two fold increase in cysteine levels, and a five-fold increase in glutathione levels. In the marine strain, the increase in thiol levels is just as striking with a one and half fold increase in ergothioneine levels, four-fold increase in cysteine, and a seven–fold increase in glutathione. Cysteine is a sulfur amino acid found in all organisms and a major component of the tripeptide, glutathione, the major low molecular weight thiol in cyanobacteria, and ergothioneine. The occurrence of ergothioneine was thought to be restricted to mycobacteria among the prokaryotes. We show for the first time that ergothioneine is present in cyanobacteria.

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Poster Board No. 19

ASSOCIATION MAPPING OF TOLERANCE GENES IN *Populus* CLONES WITH THE USE OF SIMPLE SEQUENCE REPEAT (SSR) MARKERS AND CANDIDATE GENES

The poplar tree (*P. trichocarpa, P. deltoides*) is a strong candidate for growth in regions of high trace element contamination. Using DNA from three tolerant and six sensitive genotypes of poplar, we are searching for association linkages between DNA markers and the poplar genes conferring tolerance towards salt and boron contaminants in the soil.

Two types of DNA markers are being used in this study: SSR markers and a set of 19 candidate genes. For the SSR markers, we started with a set of 50 poplar primer pairs known from the literature. DNA from each of the nine poplar clones was amplified using each primer pair, and amplification was detected using agarose gel electrophoresis. Although some of the SSR markers show polymorphism at the level of resolution of an agarose gel, many do not. A higher-resolution polyacrylamide gel system will be used for future PCR products.

For the set of 19 candidate genes, PCR amplification for all genes was successful across DNA of all 9 poplar clones. Two of the markers (PTS10 and PTS17) showed polymorphism upon digestion of the PCR products with restriction enzymes. For several of the other candidate genes, polymorphism was not detected until the DNA was actually sequenced. Nine of the markers showed potential association linkage with the salt and boron tolerance phenotypes. Polymorphism was typically located outside of the presumptive coding regions, indicating that non-coding region polymorphism may play an important regulatory role in expression of this phenotype.

We are developing an additional 50 SSR markers to screen as well as several additional candidate genes. Using our results, we will establish a map of DNA markers that are linked to genes conferring salt and boron tolerance in poplars as well as an effective screening method to identify additional tolerant poplar accessions.

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Poster Board No. 20

THAUMATIN-LIKE PROTEINS POTENTIALLY FUNCTION IN DISEASE RESISTANCE TO *Phytophthora capsici* IN PEPPER PLANTS

Pepper production has been severely influenced by various phytopathogens, especially *Phytophthora capsici,* that causes phytophthora blight, including root rot, crown rot, leaf blight, and fruit rot worldwide. Identification and utilization of disease resistance genes for pepper disease resistance breeding has become one of the best choices to overcome this disease in pepper production. In order to identify potential new candidate genes for this purpose, we applied bioinformatics tools in gene database mining for structural and functional prediction of the major disease resistance genes and proteins followed by experimental verification. As a result, we identified two thaumatin-like protein (TLP) genes with very similar nucleotide sequences (TLP1 = 246 aa, TLP2 = 250 aa, 76.8% identical). PCR using a pair of primers from the conserved domains of these genes demonstrated that the thaumatin-like genes exists as a single DNA band in all pepper plants used in this study. Online bioinformatic tools (www.ncbi.nlm.nih.gov) showed that both TLP proteins are probably glycol-phospho proteins that contain 2 alpha helices, 10 beta-sheets, and 12 coiled-coil structures, of which the first helix domain is hydrophobic and buried in the cell membrane. Considering that the thaumatin-like proteins belong to Group 5 of the pathogenesis related (PR) protein family and that some TLPs bind β;-1,3-glucans that exists in the fungal cell wall, we propose that pepper TLP protein may function through interaction on the cell surface between the host plant and the phytopathogen *P. capsici*. Further study of genomic DNA polymorphism of this particular gene may lead to the genetic mapping of this gene onto pepper linkage maps and the potential correlation of this gene with mapped resistance gene loci.

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HPLC ANALYSIS TO QUANTIFY THE NEUROTOXIC BETAMETHYLAMINO-L-ALANINE (BMAA) LEVELS IN FRUIT FLY

Neurodegenerative diseases are generally caused by damage to the motor neurons. Therefore, patients having these diseases are observed to have spasticity, brisk reflexes, muscular atrophy and loss of memory. Beta-methylamino-l-alanine (BMAA) is a non-protein amino acid that is produced by all known taxa of cyanobacteria. BMAA is hypothesized to cause neuronal cell death.

We have used Drosophila Wild type (Canton S) flies for our experiments. BMAA of different concentrations were added to the food to observe the behavioral changes in Drosophila. High performance liquid chromatography (HPLC) was performed to measure the amounts of different amino acids like alanine, glutamate, and BMAA. To quantify the BMAA levels, a reverse phase HPLC with a C 18 column was used. Before the BMAA treated samples are analyzed by the HPLC system, the system was optimized using a protocol for a standard amino acid mixture of each amino acid. In order to make the samples more polar and for accurate measurements, pre column derivatization is done using 4mM DABS-Cl Dimethylaminoazobenzene –4- sulfonyl chloride) for 10 minutes at 700C. Then the sample was dried and redissolved in 70% ethanol. The sample analyzed using the Agilent Zorbax 300SB –C18 column and HP series 1100 G1311A Quat pump. The results confirmed that the reverse phase column is suitable for quantifying BMAA and other amino acids.

It is anticipated that in the presence of BMAA, glutamate accumulation in the extracellular region in the synaptic region will occur. This extracellular glutamate may cause excitotoxicity of glutamate receptors leading to neuronal cell death and thus neurodegenerative disease, ALS and Parkinson’s.

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IDENTIFICATION OF DEVELOPMENTAL BIOMARKERS IN THE ALGAE DUNALIELLA PRIMOLECTA USING NMR-BASED METABOLOMICS

Identifying compounds as key markers of algal developmental stages has become increasingly important as the push to develop biofuel and biodiesel increases. Although using traditional genomic and proteomic approaches to elucidate algal developmental biomarkers are feasible, new breakthroughs in the field of metabolomics has introduced certain novel advantages for metabolite biomarker characterization; these include reductions in experimental cost, easy quantification of metabolic compounds, and the ability to study a more dynamic biological process. Our laboratory has been working with the microalgae Dunaliella primolecta to clean up wastewater and concurrently produce oil for biofuel. Distinct developmental stages in this algal species have been identified using microscopic analysis. The goal of this project is to discover biomarkers associated with these changes using nuclear magnetic resonance (NMR) spectroscopy. This discovery will potentially allow for manipulation of large scale algal cultures which is of great economic importance to future researchers interested in algae-based biofuel production.

D. primolecta cultures were grown for a period of up to two weeks and samples were collected at three time intervals representative of key developmental stages. The cells were subsequently harvested via centrifugation. The supernatant was removed for analysis of external metabolites while the pellet, containing internal metabolites, was homogenized using ultrasonication. Both fractions were completely dried before the metabolites were extracted using deuterated solvents. These metabolites were then subjected to NMR spectrographic analysis and the resultant spectral data was analyzed to detect changes in the metabolic profiles of the algae cultures at different growth stages. Significant changes were observed particularly in the aromatic (7-8ppm) and aliphatic (2.5-4ppm) spectral regions. Current work includes correlation of spectral peaks with known compounds. Further work must be done to determine which peaks correspond with pertinent biomarkers.

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THIOLS ARE INVOLVED IN PROTECTION AGAINST METAL STRESS

Members of Firmicutes and Actinobacteria - including Staphylococcus aureus and Mycobacterium tuberculosis - pose a serious public health risk. The proliferation of antibiotic resistance, as in the well-publicized cases of MRSA (Methicillin Resistant Staphylococcus aureus) and XDR (extremely drug resistant) tuberculosis, exponentially intensifies this risk. Before we can synthesize new medications to compensate for antibiotic resistance, a thorough understanding of how bacteria are able to survive in the human host and in other environments under stresses necessary. Bacterial pathways that are not present in host organisms, but are important for the bacterium's survival, in particular need to be comprehensively examined. Detoxification pathways mediated by unique low molecular weight thiols found in bacterial pathogens but not in humans offer interesting possibilities as drug targets. These thiols, including bacillithiol (BSH) in S. aureus and mycothiol (MSH) in M. tuberculosis, are expected to be responsible for a number of crucial functions such as maintaining a reducing environment within the cell, protecting against reactive oxygen and nitrogen species, and acting as cofactors in biochemical reactions. To understand the contribution of low molecular weight thiols to protection against metal stress, we performed Kirby Bauer disk assays with different metal treatments on Bacillus subtilis and S. aureus strains disrupted in the bacillithiol biosynthesis pathways, and M. smegmatis strains disrupted in the mycothiol biosynthetic pathway.

We show that there is an increased sensitivity to certain metals, such as cadmium, between S. aureus strains with bacillithiol and those lacking bacillithiol. We also see differences in sensitivity to certain metals in M. smegmatis strains with mycothiol and those lacking mycothiol. Thus, it appears that both low molecular weight thiols are involved in protection against metal stress, similar to glutathione.

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OPTIMUM TEMPERATURES FOR TWO BIOTYPES OF HORSEWEED (CONYZA CANADENSIS) AND HAIRY FLEABANE (C. BONARIENSIS) GERMINATION

Horseweed (Conyza canadensis) and hairy fleabane (Conyza bonariensis) are two common weeds. In recent years, these two species have become a more widespread problem in the SJV due to the evolution of glyphosate resistance and paraquat resistance (in hairy fleabane only). Therefore, there is a need for alternate control. A major environmental factor driving seed germination and seedling emergence is temperature. In recent years, these species have been noticed to germinate and emerge year-round in the SJV. Therefore, the optimal temperature for germination of these species needs to be determined. Studies in the SJV have found differences in the growth and development of glyphosate-resistant (GR) and glyphosate-susceptible (GS) biotypes of these species. However, differences in optimum temperature for germination and emergence of these two biotypes are unknown. Therefore, the objective of this experiment was to determine the optimum temperature for germination and seedling emergence from seeds of known GR and GS horseweed and hairy fleabane collected from the SJV. A growth chamber experiment was conducted at California State University, Fresno in 2010. Pots were filled with soil and 30 seeds of each species and biotype were planted on the surface of the media. Growth chamber temperatures were set at 5/0, 10/5, 15/10, 20/15, 25/20, and 30/25 C (day/night) temperature, respectively. Seedling emergence counts were recorded every day for 6 weeks and an emerged seedling was removed as soon as it was counted. Resulted in optimum temperature for germination of both species was 25/20 C. Germination, in general, was greater for horseweed than for hairy fleabane. This may be because of the differences in maturity of the seeds at the time of collection. Significant differences were seen in germination of the GR and GS horseweed seeds at the lower and higher temperatures but not at the optimum temperature. The germination of seeds from GS horseweed plants was always greater than those from GR plants at the sub-optimum temperatures. However, the differences were opposite for hairy fleabane because the germination of seeds from GR hairy fleabane plants was greater than those from GS plants at almost all temperature regimes, except at 5/0 and 30/25 C. These findings may be interesting as the study showed that germination of the biotypes at different temperature ranges was different although the seeds were collected from areas within a 50 mile radius. The differences between biotypes could be a result of environmental rather than genetic factors, but this needs to be ascertained. In conclusion, the experiment determined the optimum temperature of both species as 25/20 C and found differences between biotypes in germination and seedling emergence. The experiment is being repeated.

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INVERTEBRATE DRIFT DYNAMICS OF THE SAN JOAQUIN RIVER

Increased flows in the San Joaquin River in California's Central Valley are planned to allow the reestablishment of chinook salmon runs to this impounded river. In order to document baseline invertebrate drift prior to restoration flows, we sampled fall drift from riffle and glide reaches in river sections bordered by conservancy and agricultural lands. Sources of variation in drift density, diversity, and sample similarity were examined from the 6516 captured individuals. Baetid mayflies comprised 61% of total invertebrates in drift among all sample sites. Drift density was 34x greater at the conservancy site, and riffles produced 2x as much drift as glides across site types. Sample diversity was also much higher at the conservancy site. Taxonomic similarity among samples was much greater within sites than reach types, suggesting that the adjacent land use may be much more important than reach type in determing drift abundance and composition. Therefore, the San Joaquin River restoration efforts should give commensurate attention to upland factors as well as within-river variables in assessing juvenile salmonid habitat quality.

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TRANSGENIC LINE OF *Caenorhabditis elegans* EXPRESSING GFP AND RFP MARKERS: ESTABLISHMENT OF TOOLS TO STUDY EARLY DEVELOPMENT OF THE PLANT PARASITIC NEMATODE *Meloidogyne incognita*

Meloidogyne incognita (Mi) is a parthenogenic plant-parasitic nematode that infects the roots of a wide range of crops resulting in the loss of billions of dollars for crop growers worldwide. To understand how to control this pest, we intend to study this nematode's development by establishing *M. incognita* lines that express the genetic markers Green Fluorescent Protein (GFP) and Red Fluorescent Protein (RFP) (GFP fluoresces muscle cells and RFP fluoresces nerve cells) using a gene gun. The mechanism of the gene gun is that high velocity micro projectiles, such as gold, carries desired DNA into the host organism. The gold particles, due to high Helium pressure used, penetrate into the host along with DNA to be inserted. The protocols to develop *M. incognita* lines expressing GFP and RFP will be established first using the model nematode *Caenorhabditis elegans* (*C. elegans*), which is the focus of this study.

We have successfully established at least two lines of *C. elegans* expressing GFP and at least two lines of *C. elegans* expressing RFP in separate shooting experiments. We are currently establishing these lines as true-breeding lines following a selection screen. We are also selecting males from GFP lines and hermaphrodites from RFP lines to perform crosses (and the corresponding reciprocal crosses) with the objective of generating *C. elegans* lines expressing both markers.

In conclusion, we have developed methodologies to generate transgenic *C. elegans* lines expressing one or two marker genes. These methodologies can now be applied to generate *Mi* transgenic lines expressing GFP or RFP to monitor developmental patterns of muscle and nerve cells.

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HEPATITIS C VIRUS INCREASES THE LEVEL OF NAD(P)H OXIDASE 4 IN HUMAN HEPATOMA CELLS IN A TRANSFORMING GROWTH FACTOR BETA 1-DEPENDENT MANNER

Hepatitis C virus (HCV) is an etiologic agent of hepatocellular carcinoma in humans. HCV infection has been associated with severe alterations of the host redox status, and oxidative stress has been identified as a key mechanism of HCV-induced pathogenesis. Previously we showed that NAD(P)H oxidase 4 (Nox 4) is an important source of reactive oxidative species during HCV infection and that HCV increases its nuclear localization in hepatocytes. Furthermore, HCV increased transforming growth factor beta 1 (TGF- β1). TGF- β1 is a cytokine that participates in fibrogenesis and activates SMAD2/3 pathway. TGF- β1 has shown to induce Nox 4 in various cells.

Therefore, we hypothesized that HCV increases Nox 4 level in hepatocytes through TGF- β1 and that TGF- β1 would then be sufficient to increase the level of Nox 4, even in the absence of HCV. Huh 7 human hepatoma cells were treated with TGF- β1 for 1 and 17 hour. Then, Nox 4 mRNA and protein levels were analyzed by quantitative polymerase chain reaction, immunofluorescence staining and western blots. We found that TGF- β1 increased Nox 4 mRNA. TGF- β1 also increased nuclear migration of SMAD 2/3, at 1hr which persisted to 17hr, indicating SMAD proteins activation by TGF- β1. In addition, TGF- β1 increased the protein level of Nox 4 at 17hrs. Nox 4 elevation by HCV could be decreased by neutralizing antibody to TGF- β1.

Therefore, HCV increases Nox 4 through TGF- β1. Also, TGF- β1 can increase Nox4 mRNA and protein levels in Huh 7 cells even in the absence of HCV. Hepatocyte Nox 4 is likely to play an important role in the pathogenesis of liver diseases caused by the HCV.

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INVESTIGATING THE EFFECTS OF A SELENIUM-ENRICHED DIET ON GROWTH AND METABOLISM IN TILAPIA (Oreochromis mossambicus)

Selenium is a naturally occurring, essential element that is required for normal animal health. Selenium exhibits antioxidant properties improving overall health. Selenium supplemented diets have been shown to reduce the onset of certain cancers and prevent cardiomyopathies. The health benefits of selenium are starting to be investigated in fish and other vertebrates. Selenium supplementation in the common carp increased body weight without adverse dietary effects. Similarly, cutthroat trout fed a selenium supplemented diet grew larger than controls and exhibited a reduction in mortality during an 80 day feeding experiment. However, the effects of selenium supplementation in tilapia has yet to be ascertained. Therefore, the objective of this project was to investigate the effects a selenium-enriched diet on growth and metabolism in tilapia.

Tilapia (Oreochromis mossambicus) were fed a control diet (no selenium additive), a low dose (0.3 ppm), or a high dose (0.6 ppm) selenium-enriched diet for 8 weeks. The selenium-enriched feed was produced as a byproduct from a selenium phytoremediation program being conducted on the west side of the San Joaquin Valley in California. Body weights and lengths were measured at 4 and 8 weeks. Brain tissue (hypothalamus and telencephalon) were collected and analyzed for specific endocrine markers of growth and metabolism.

Fish fed the low selenium diet grew significantly larger than fish fed the control diet. The high dose had no effect. Both doses of selenium increased hormones involved in stimulating appetite (neuropeptide Y and ghrelin) in both brain regions analyzed. Plasma levels of a growth promoting hormone (insulin-like growth factor-1) were significantly elevated in both the low and high selenium treatment groups. These data suggest that the growth promoting effects of selenium are likely mediated by an increased in appetite stimulating hormones (neuropeptide Y and ghrelin) and an activation of the growth axis (insulin-like growth factor-1).