THE FIRST ANNUAL
STUDENT RESEARCH SYMPOSIUM

Celebrating the achievements of
San Diego State University students
in research, scholarship & creative activity

February 29 & March 1, 2008
THE FIRST ANNUAL
STUDENT RESEARCH SYMPOSIUM

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February 29 & March 1, 2008
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February 29, 2008

Dear Colleagues and Guests:

It is with great pleasure I welcome you to San Diego State University’s first annual Student Research Symposium. The symposium is a university-wide event to recognize and celebrate the outstanding research, scholarship, and creative activity of our undergraduate and graduate students. The symposium also identifies our most talented students who will represent SDSU at the annual California State University Student Research Competition.

More than 300 students will present their original scholarly work in a public forum that introduces community members, partners, students and guests to our many outstanding academic programs. Moreover, the symposium provides a venue for sharing academic excellence and discovery and demonstrates SDSU’s commitment to developing innovative solutions for our region, nation, and the world. All of these goals advance the vision of SDSU as a top 10 urban research university.

To plan and execute an event of this magnitude required the efforts of dedicated faculty and staff members. In addition, nearly 200 judges have volunteered to share their time and expertise evaluating oral and poster presentations. These collective efforts demonstrate our commitment to fostering student scholarship and professional development and I am grateful to all who have worked so hard on behalf of our students and the university.

Best wishes for a great symposium.

Sincerely,

Stephen L. Weber, President
San Diego State University
### Friday Morning, February 29, 2008

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>7:00 am – 4:00 pm</td>
<td>Registration</td>
</tr>
<tr>
<td>Montezuma Hall Lobby</td>
<td></td>
</tr>
<tr>
<td>8:00 am – 8:30 am</td>
<td>SRS Opening Remarks/Welcome</td>
</tr>
<tr>
<td>Montezuma Hall North</td>
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</tr>
<tr>
<td>8:45 am – 10:15 am</td>
<td>Session A: Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
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<tr>
<td>10:30 am – 12:00 am</td>
<td>Session A: Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
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</tr>
<tr>
<td>8:45 am – 12:30 pm</td>
<td>Session A: Poster Presentations</td>
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<tr>
<td>Montezuma Hall South</td>
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### Friday Afternoon, February 29, 2008

<table>
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<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>1:00 pm – 4:45 pm</td>
<td>Session B: Poster Presentations</td>
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<tr>
<td>Montezuma Hall South</td>
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<tr>
<td>1:15 pm – 2:45 pm</td>
<td>Session B: Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
<td></td>
</tr>
<tr>
<td>3:00 pm – 4:30 pm</td>
<td>Session B: Oral Presentations</td>
</tr>
<tr>
<td>Aztec Center</td>
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<tr>
<td>1:00 pm – 4:45 pm</td>
<td>Session B: Poster Presentations</td>
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<tr>
<td>Montezuma Hall South</td>
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</tr>
</tbody>
</table>

### Saturday Morning, March 1, 2008

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00 am – 11:00 am</td>
<td>Registration</td>
</tr>
<tr>
<td>Montezuma Hall Lobby</td>
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<tr>
<td>8:45 am – 10:15 am</td>
<td>Session C: Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
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<tr>
<td>10:15 am – 11:45 am</td>
<td>Session C - Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
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</tr>
<tr>
<td>10:45 am</td>
<td>Session C - Oral Presentations</td>
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<tr>
<td>Aztec Center</td>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>12:00 pm – 2:00 pm</td>
<td>Keynote Address and Luncheon</td>
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</table>
**Friday, February 29**

**7:00 – 4:00**

**Registration**

**Welcome**

**Montezuma Hall Lounge**

**Montezuma Hall North**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Number</th>
<th>Session Type</th>
<th>Session Title</th>
<th>Academic Level</th>
<th>Room Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45 – 12:30</td>
<td>A-1</td>
<td>Poster</td>
<td>Biological Sciences and Biochemistry</td>
<td>All levels</td>
<td>Montezuma Hall South</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Health and Health Behavioral Sciences</td>
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<td></td>
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<td>Humanities, Psychology, and Social Sciences</td>
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<td></td>
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<td>Language and Communications</td>
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<td></td>
<td></td>
<td></td>
<td>Chemistry</td>
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<td></td>
<td>Physics</td>
<td></td>
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</tr>
<tr>
<td>8:45</td>
<td>A-2</td>
<td>Oral</td>
<td>Neuroscience</td>
<td>Undergraduate and Master's</td>
<td>Calmecac</td>
</tr>
<tr>
<td>8:45</td>
<td>A-3</td>
<td>Oral</td>
<td>Social and Gender Issues in the Media</td>
<td>Undergraduate and Master's</td>
<td>Casa Real</td>
</tr>
<tr>
<td>8:45</td>
<td>A-4</td>
<td>Oral</td>
<td>Philosophical Thoughts</td>
<td>Undergraduate and Master's</td>
<td>Chantico</td>
</tr>
<tr>
<td>8:45</td>
<td>A-5</td>
<td>Oral</td>
<td>Geological Sciences and Astronomy</td>
<td>Master's</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>8:45</td>
<td>A-6</td>
<td>Oral</td>
<td>Hydrology and Soil Erosion</td>
<td>Master's</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>8:45</td>
<td>A-7</td>
<td>Oral</td>
<td>Chemical Biology</td>
<td>Undergraduate</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>8:45</td>
<td>A-8</td>
<td>Oral</td>
<td>Physics and Computational Sciences</td>
<td>All levels</td>
<td>Quetzalcoatl B</td>
</tr>
<tr>
<td>10:30</td>
<td>A-9</td>
<td>Oral</td>
<td>Student Services in Higher Education</td>
<td>Undergraduate and Master's</td>
<td>Calmecac</td>
</tr>
<tr>
<td>10:30</td>
<td>A-10</td>
<td>Oral</td>
<td>Cognitive Neurosciences</td>
<td>Undergraduate and Master's</td>
<td>Casa Real</td>
</tr>
<tr>
<td>10:30</td>
<td>A-11</td>
<td>Oral</td>
<td>Decision Support</td>
<td>All levels</td>
<td>Chantico</td>
</tr>
<tr>
<td>10:30</td>
<td>A-12</td>
<td>Oral</td>
<td>Diversity and Pedagogy in Education</td>
<td>Doctoral</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>10:30</td>
<td>A-13</td>
<td>Oral</td>
<td>Mechanics and Materials</td>
<td>All levels</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>10:30</td>
<td>A-14</td>
<td>Oral</td>
<td>Cell Biology I</td>
<td>Doctoral</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>10:30</td>
<td>A-15</td>
<td>Oral</td>
<td>Gender and Status</td>
<td>Undergraduate and Master's</td>
<td>Quetzalcoatl B</td>
</tr>
<tr>
<td>1:00 – 4:45</td>
<td>B-1</td>
<td>Poster</td>
<td>Industrial and Organizational Behavioral Studies</td>
<td>All levels</td>
<td>Montezuma Hall South</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Cognition, Cognitive, and Behavioral Sciences</td>
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<td>Computer Science and Engineering</td>
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<td></td>
<td>Geological Sciences</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Mathematics and Computational Sciences</td>
<td></td>
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</tr>
<tr>
<td>1:15</td>
<td>B-2</td>
<td>Oral</td>
<td>Gender and Sexuality</td>
<td>Undergraduate and Master's</td>
<td>Backdoor</td>
</tr>
<tr>
<td>1:15</td>
<td>B-3</td>
<td>Oral</td>
<td>Language and Linguistics</td>
<td>Undergraduate and Master's</td>
<td>Calmecac</td>
</tr>
<tr>
<td>1:15</td>
<td>B-4</td>
<td>Oral</td>
<td>Sustainability, Environment, and Conservation</td>
<td>Master's and Doctoral</td>
<td>Casa Real</td>
</tr>
<tr>
<td>1:15</td>
<td>B-5</td>
<td>Oral</td>
<td>Educational Technology</td>
<td>Master's and Doctoral</td>
<td>Chantico</td>
</tr>
<tr>
<td>1:15</td>
<td>B-6</td>
<td>Oral</td>
<td>Computer Sciences and Bioinformatics</td>
<td>All levels</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>1:15</td>
<td>B-7</td>
<td>Oral</td>
<td>Chemistry and Biochemistry</td>
<td>Master's and Doctoral</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td>1:15</td>
<td>B-8</td>
<td>Oral</td>
<td>Cell Biology II</td>
<td>Master's and Doctoral</td>
<td>Quetzalcoatl A</td>
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<tr>
<td>1:15</td>
<td>B-9</td>
<td>Oral</td>
<td>Nutrition, Perceptions, and Health</td>
<td>Undergraduate and Master's</td>
<td>Quetzalcoatl B</td>
</tr>
<tr>
<td>3:00</td>
<td>B-10</td>
<td>Oral</td>
<td>Creative Activities and Research in the Arts I</td>
<td>Master's</td>
<td>Backdoor</td>
</tr>
<tr>
<td>3:00</td>
<td>B-11</td>
<td>Oral</td>
<td>Past and Present Indigenous Communities in the Californias</td>
<td>Undergraduate and Master's</td>
<td>Casa Real</td>
</tr>
<tr>
<td>3:00</td>
<td>B-12</td>
<td>Oral</td>
<td>Geotechnical and Environmental Engineering</td>
<td>Master's</td>
<td>Chantico</td>
</tr>
<tr>
<td>3:00</td>
<td>B-13</td>
<td>Oral</td>
<td>Political and Ethical Issues</td>
<td>Master's</td>
<td>Council Chambers</td>
</tr>
<tr>
<td>3:00</td>
<td>B-14</td>
<td>Oral</td>
<td>Migration and Globalization</td>
<td>Undergraduate and Master's</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>3:00</td>
<td>B-15</td>
<td>Oral</td>
<td>Health Behaviors I</td>
<td>Undergraduate and Master's</td>
<td>Quetzalcoatl B</td>
</tr>
</tbody>
</table>
### Saturday, March 1
**7:00 – 11:00**  
Registration  
Montezuma Hall Lounge

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Number</th>
<th>Session Type</th>
<th>Session Title</th>
<th>Academic Level</th>
<th>Room Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>C-1</td>
<td>Oral</td>
<td>Higher Education and Curriculum</td>
<td>Master’s</td>
<td>Calmecac</td>
</tr>
<tr>
<td></td>
<td>C-2</td>
<td>Oral</td>
<td>MEMS and Electrical Devices Design</td>
<td>Master’s</td>
<td>Casa Real</td>
</tr>
<tr>
<td></td>
<td>C-3</td>
<td>Oral</td>
<td>Social and Behavioral Health</td>
<td>Master’s and Doctoral</td>
<td>Council Chambers</td>
</tr>
<tr>
<td></td>
<td>C-4</td>
<td>Oral</td>
<td>Communication Studies</td>
<td>Master’s</td>
<td>Presidential Suite</td>
</tr>
<tr>
<td></td>
<td>C-5</td>
<td>Oral</td>
<td>Ecology</td>
<td>Undergraduate and Master’s</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td></td>
<td>C-6</td>
<td>Oral</td>
<td>Literature Through the Ages</td>
<td>Undergraduate and Master’s</td>
<td>Quetzalcoatl B</td>
</tr>
<tr>
<td>10:15</td>
<td>C-7</td>
<td>Oral</td>
<td>Creative Activities and Research in the Arts II</td>
<td>Undergraduate and Master’s</td>
<td>Backdoor</td>
</tr>
<tr>
<td></td>
<td>C-8</td>
<td>Oral</td>
<td>Applied Physiology</td>
<td>Master’s and Doctoral</td>
<td>Casa Real</td>
</tr>
<tr>
<td></td>
<td>C-9</td>
<td>Oral</td>
<td>Culture, Identity, and Representation</td>
<td>Undergraduate and Master’s</td>
<td>Chantico</td>
</tr>
<tr>
<td></td>
<td>C-10</td>
<td>Oral</td>
<td>Violence and Relationships</td>
<td>Undergraduate</td>
<td>Council Chambers</td>
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<tr>
<td></td>
<td>C-11</td>
<td>Oral</td>
<td>Psycholinguistics and Speech Perception</td>
<td>Doctoral</td>
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<tr>
<td></td>
<td>C-12</td>
<td>Oral</td>
<td>Evolutionary Biology</td>
<td>Undergraduate and Master’s</td>
<td>Quetzalcoatl A</td>
</tr>
<tr>
<td>10:45</td>
<td>C-13</td>
<td>Oral</td>
<td>Health Behaviors II</td>
<td>Master’s</td>
<td>Quetzalcoatl B</td>
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**12:00**  
Luncheon  
Montezuma Hall
February 29, 2008

Dear SDSU Community and Guests:

Welcome to the first annual San Diego State University Student Research Symposium. The Symposium is a celebration of student accomplishments. Through this university-wide forum, students share their research and creative processes with the university and community.

The two-day Symposium includes presentations representing more than 50 disciplines that range from the creative and performing arts to the physical and life sciences. The number of presentations speaks to the focus that faculty have placed on involving their students in research, scholarship, and creative activities. This emphasis fosters student discovery, exploration, and innovation contributing to a broad and rich educational experience.

Dedicated faculty, staff, and students facilitated the organization and planning of the Student Research Symposium. The Symposium is realized through substantial support from the President’s Leadership Fund, Graduate & Research Affairs, University Advancement, and Instructional Technology Services as well as involvement from the Office of the Provost, Academic Deans, Undergraduate Studies, Associated Students, SDSU Research Foundation, Alumni Association, Aztec Center and Aztec Shops. In addition, Amylin Pharmaceuticals has provided a significant contribution to the Symposium.

While the Symposium focus is on student excellence, we recognize the important contribution of our faculty and thank all who have devoted time, shared knowledge and provided leadership, guidance, and mentoring for this next generation of scientists, artists, scholars and professionals.

We hope you enjoy the program.

Fred W. Kolkhorst, Ph.D.
Professor, Exercise and Nutritional Sciences
Chair, Student Research Committee

Camille Nebeker
Director, Division of Research Affairs
Graduate and Research Affairs
Dr. Irwin Jacobs
Chairman of the Board
QUALCOMM, Incorporated

Dr. Irwin Jacobs co-founded the company that has evolved into QUALCOMM Incorporated, purveyor of Code Division Multiple Access (CDMA) digital wireless technology. Dr. Jacobs led the commercialization of CDMA, now broadly adopted for third-generation cellular communications and used by hundreds of millions of consumers worldwide for voice and mobile broadband Internet access.

Dr. Jacobs holds thirteen CDMA patents, contributing to QUALCOMM’s portfolio of more than 5,700 issued and pending U.S. patents. Some 135 companies have licensed CDMA for the manufacture of wireless devices and network infrastructure equipment, integrated circuits, and test equipment.

Dr. Jacobs received a bachelor’s degree in electrical engineering from Cornell University in 1956 and master’s and doctoral degrees in electrical engineering from MIT in 1957 and 1959, respectively.

In addition to his numerous industry, education and business awards, Dr. Jacobs was conferred with an honorary doctor of science degree from San Diego State University in 2006.

Dr. Jacobs and his wife Joan are generous contributors to public arts and education in San Diego. Their munificence has benefited a variety of organizations within our community, including the San Diego Symphony, local theater, and our major universities.

QUALCOMM’s corporate philanthropy emulates that of its founder. The company has pledged millions to help bridge the “digital divide.” Concentrating in its home city of San Diego, the company has spread its giving for math and science education from kindergarten into the graduate level through partnerships with San Diego Unified School District, San Diego State University and University of California research institutes.
Awards will be presented at the luncheon on Saturday, March 1, to recognize the most outstanding presentations of research, scholarship, and creative activity at the Student Research Symposium. These are:

**President’s Award**
Ten President’s Awards of $500 each will be given for the most outstanding oral presentations. One President’s Award will be given to the most outstanding presentation in each of the four categories—Creative and Performing Arts, Health Studies and Life Sciences, Humanities, Social, Behavioral, and Educational Studies, and Sciences, Engineering, Informatics, and Business—and then to the next six highest rated presentations across all categories.

Those receiving a President’s Award will represent San Diego State University at the CSU Student Research Competition on May 2–3 at CSU East Bay.

**Dean’s Award**
Dean’s Awards of $250 each are given for oral presentations. Two awards will be given to the top two presentations in each college and one award given to the top presentation from the Imperial Valley Campus.

**Provost’s Award**
Twelve Provost’s Awards of $150 each will be given to recognize the outstanding poster presentations. Two awards will be made in the Health Studies and Life Sciences category, four awards in the Humanities, Social, Behavioral, and Educational Studies category, and six awards in the Sciences, Engineering, Informatics, and Business category.
12:00 – 2:00 pm, Saturday, March 1
The luncheon is open to all student presenters, mentors, and judges.

Welcome
Thomas R. Scott, Vice President for Research

Buffet Lunch

President's Greeting
Stephen L. Weber

Keynote Address
Dr. Irwin Jacobs, Chairman of the Board, QUALCOMM, Inc.

Award Ceremony and Student Recognition

Provost's Awards
Nancy A. Marlin

Dean's Awards
Paul Wong, College of Arts and Letters
Gail K. Naughton, College of Business Administration
Ric A. Hovda, College of Education
David T. Hayhurst, College of Engineering
Marilyn Newhoff, College of Health and Human Services
Joyce M. Gattas, College of Professional Studies and Fine Arts
Stanley Maloy, College of Sciences
Stephen B. W. Roeder, SDSU Imperial Valley Campus

President's Awards
Stephen L. Weber

Closing Remarks
Thomas R. Scott, Vice President for Research
Each poster session will last 4 hours and 15 minutes. Presenters are assigned to their poster for 75 minutes for discussion. Each oral presentation is allotted 10 minutes followed by a 5-minute question and answer period. Participants and guests are asked to enter or leave the rooms only between presentations.

Please turn off all cell phones and other devices.

Sessions: Friday, February 29th

Session A-1
Poster: Biological Sciences and Biochemistry  
Friday, February 29th, 2008, 8:45 am – 12:30 pm  
Location: Montezuma Hall South

1. Poster #1  8:45-10:00 am  
   *Synthesis and Structural Activity Relationship Analysis of Sansalvamide A Derivatives against Drug Resistant Cancer Cell Lines*  
   Robert Sellers, Chemistry

2. Poster #2  8:45-10:00 am  
   *Exposure to Volatile Organic Compounds in a Retail Environment*  
   Gloria Zarate, Chemistry

3. Poster #3  8:45-10:00 am  
   *Chemical Synthesis of Micromide*  
   Ari Widjaja, Chemistry

4. Poster #4  8:45-10:00 am  
   *The Biomedical Imaging Potential of Colloidal Group-III Metal Nitride Quantum Dots*  
   Jean Werle, Chemistry

5. Poster #5  8:45-10:00 am  
   *Multi-Photon Laser Wave-Mixing Analysis of Cellular Proteins*  
   Donna Sirenski, Chemistry

6. Poster #6  8:45-10:00 am  
   *Combining In Vivo and In Silico Screening for Protein Stability*  
   Nesreen Barakat, Biochemistry

7. Poster #7  8:45-10:00 am  
   *Ribosomal RNA Production Is Up-Regulated in E. Coli in Response to Expression of Exogenous Genes that Contain the Rare Arg Codons AGA/AGG*  
   M. Ruetsche, Biochemistry

8. Poster #8  8:45-10:00 am  
   *The Role of Phage P22 gp26 Tailspike Protein in the Ejection of Phage DNA*  
   Justine AhTye, Biology

9. Poster #9  8:45-10:00 am  
   *Cross-platform Microarray Gene Expression Changes in Neonatal Rat Cardiocytes Responding to the Antidiabetic Drug Rosiglitazone*  
   Denise Buenrostro, Biology

10. Poster #10  8:45-10:00 am  
    *Histone Regulation During the Cell Cycle of the Human Malaria Parasite Plasmodium falciparum*  
    Lynelle Garnica, Biology

11. Poster #11  8:45-10:00 am  
    *The Mechanism of Superinfection Exclusion of the P22 sieA Protein*  
    Matthew San Pedro, Biology

12. Poster #12  8:45-10:00 am  
    *Designing a Protein Based Inhibitor of Aβ946; Amyloid Fibrils*  
    Aditi Apte, Biology

13. Poster #13  8:45-10:00 am  
    *Exploration of the Natural Product Sansalvamide A as a Small Peptide Inhibitor of Hsp90 to Target Various Cancers*  
    Robert Vasko, Cell and Molecular Biology

14. Poster #14  8:45-10:00 am  
    *Time-lapse Microscopy Identifies a Mechanical Rotation during Ascidian Embryo Development*  
    Korie Faber, Biology

15. Poster #15  8:45-10:00 am  
    *Node and Cilia Genes Associated with Left/Right Asymmetry are Expressed in the Chordate Ciona intestinalis*  
    Patrick Perrigue, Biology

16. Poster #16  8:45-10:00 am  
    *Using Acetylated Tubulin Antibodies to Visualize Cilia During Ciona intestinalis Embryonic Development*  
    Yun Ju Chiu, Biology

17. Poster #17  8:45-10:00 am  
    *C-terminal Deletions of IKK beta Lose Specificity for IkappaB Substrate*  
    Jacob Shaul, Biology

18. Poster #18  8:45-10:00 am  
    *Contaminant Levels and Potential Health Effects in Chelonia Mydas in San Diego Bay, CA*  
    Lisa Komoroske, Biology

Session A-1
Poster: Health and Health Behavioral Sciences  
Friday, February 29th, 2008, 8:45 am – 12:30 pm  
Location: Montezuma Hall South

19. Poster #19  10:00-11:15 am  
    *The Effects of Timing, Type, and Severity of Maltreatment on Somatic Complaints in Childhood*  
    Karin Hemric, Psychology
Session A-1
Poster: Humanities, Psychology, and Social Sciences
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

20 Poster #20 10:00-11:15 am
_EAT Subscale Scores as Predictors of BMI for Male and Female SDSU Students_
Stephanie Miller, Psychology

21 Poster #21 10:00-11:15 am
_Disease Adaptation and Health Outcomes in HIV-positive Hispanics_
Camacho Lizeth, Psychology

22 Poster #22 10:00-11:15 am
_Cost-effectiveness of Different Recruitment Strategies for Secondhand Smoke Research Study_
Laura Sirikulvadhana, Public Health

23 Poster #23 10:00-11:15 am
_A Critical Analysis of Medication Adherence Among Heterosexual HIV-Positive Hispanics_
Iris Rayngay, Public Health

24 Poster #24 10:00-11:15 am
_Feasibility of Conducting a Study on Exposure to Environmental Tobacco Smoke Using a Handheld Personal Digital Assistant (PDA) to Measure Health Behavior_
Kara Ballenger-Browning, Public Health

25 Poster #25 10:00-11:15 am
_Using Feeding Traces and the Presence of Canarium Madagascariensis in Determining the Distribution of Daubentonia Madagascariensis in Ranomafana National Park, Madagascar_
Timothy Sefczek, Anthropology

26 Poster #26 10:00-11:15 am
_Psychometric Study of Descriptive Norms Regarding Dating Violence_
Stephanie Skinner, Psychology

27 Poster #27 10:00-11:15 am
_Is Barack Obama Less American than Hillary Clinton?_
Kyle Jones, Psychology

28 Poster #28 10:00-11:15 am
_Social Dating Goals_
Ebonie Solin, Child and Family Development

29 Poster #29 10:00-11:15 am
_Does Familiarity Breed Optimism? Effects of Task Familiarity on Performance Predictions_
Welton Wang, Psychology

30 Poster #30 10:00-11:15 am
_Marital Satisfaction Among Indian Immigrants: Arranged and Non-arranged Marriages_
Dara McIntyre, Psychology

31 Poster #31 10:00-11:15 am
_Parental Emotional Availability as a Predictor of College Women’s Self-esteem_
Elizabeth De Armas, Psychology

32 Poster #32 10:00-11:15 am
_Peer and Personal Norms in Relation to Teen Relationship Violence in Mexican Versus Mexican-American Teens_
Jessica Belfy, Psychology

33 Poster #33 10:00-11:15 am
_The Growth and Levels of Prosocial Normative Beliefs among Middle School Children: A Longitudinal Study_
Tiago Antonio, Psychology

34 Poster #34 10:00-11:15 am
_Perceived Pressure among Division-I Athletes_
Jaclyn Shapin, Psychology

35 Poster #35 10:00-11:15 am
_Injunctive Norms among Delinquent Male Youths: the Relationship between Dating Violence and Positive Conflict Resolution_
Robert Jordan, Psychology

36 Poster #36 10:00-11:15 am
_Implications of the “Perpetual Foreigner” Stereotype on Ethnic Minorities’ Self-concept_
Laura Smalarz, Psychology

37 Poster #37 10:00-11:15 am
_I Know You Are, But What Am I? Implicit Political Stereotypes_
Christopher Anderson, Psychology

38 Poster #38 10:00-11:15 am
_Gestalt Theory: A Piece Left Out of the Whole_
Christyna Prounh, Psychology

39 Poster #39 10:00-11:15 am
_Awareness and Internalization of Sociocultural Attitudes and College Women’s Self-esteem_
Elizabeth Scarpetta, Psychology
Session A-1
Poster: Language and Communications
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

40 Poster #40 11:15-12:30 pm
Processing of Overt Anaphors in Typical and Atypical Developing Language Populations
Bonnie Romanowsky, Speech, Language, and Hearing Sciences

41 Poster #41 11:15-12:30 pm
Complex Syntax of African American English-speaking Children
Kathryn Sievers, Speech Language Pathology

42 Poster #42 11:15-12:30 pm
African American English-speaking Children’s Use of Past Tense
Stephanie Ash, Speech Language and Hearing Sciences

43 Poster #43 11:15-12:30 pm
DPOAEs in Women and Men after Listening to an iPod
Jennifer Grace, Speech Language and Hearing Sciences

44 Poster #44 11:15-12:30 pm
Distortion Product Otoacoustic Emission (DPOAE) Growth Functions before and after 60 Minutes of iPod Use
Leslie Willis, Audiology

45 Poster #45 11:15-12:30 pm
Perceptual Segregation of Talkers by Simulated Cochlear Implanters: Effects of F0 and Vocal Tract Length Manipulation
Caitlin Meuel, Audiology

46 Poster #46 11:15-12:30 pm
Verb Learning in Action! 2-year-olds Use Communicative Intentions to Learn Novel Verbs in a Dynamic Context
Amy Pace, Speech, Language and Hearing Sciences

Session A-1
Poster: Chemistry
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

47 Poster #47 11:15-12:30 pm
The Growth Kinetics of Silver Nanoparticles Produced by the Reduction of Silver Nitrate
Kelly Laggner, Chemistry

48 Poster #48 11:15-12:30 pm
The Relative Efficiencies of Light Versus Heat in the Formation of Silver Nanoparticles
Gabriela Espinoza, Chemistry

49 Poster #49 11:15-12:30 pm
A Mass Spectrometry Technique to Reduce Background Hydrogen Signal Under an Ultrahigh Vacuum Environment
Mallory Hinks, Chemistry

Session A-1
Poster: Physics
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

50 Poster #50 11:15-12:30 pm
Shadow Structures to Standardize GoogleRanks™ Between Disconnected Components
Kristen Mecadon, Physics

Session A-2
Oral Presentation: Neuroscience
Friday, February 29th, 2008, 8:45 am
Location: Calmecac

51 8:45 am
The Effects of Dietary Choline Deficiency and Prenatal Alcohol Exposure on Behavioral Development
Miguel Arce, Psychology

52 9:00 am
Reactive Aggressive Youth Brain Activation is Increased in Response to Emotional Faces, but Reduced During an Impulsivity Task
Lacy Olson, Psychology

53 9:15 am
Arterial Spin Labeling in Children: BOLD and CBF Hemodynamic Response to Auditory Stimulation
Leanna Hernandez, Psychology

54 9:30 am
Withdrawn

55 9:45 am
Investigating Developmental Brain Plasticity After Early Brain Injury: A Diffusion Tensor Imaging Study
Shauna Geraghty, Psychology

56 10:00 am
Neural Correlates of Umami and Salt Qualities during Hunger and Satiety
Lori Haase, Psychology
Session A-3
Oral Presentation: Social and Gender Issues
Friday, February 29th, 2008, 8:45 am
Location: Casa Real

57 8:45 am
Who Watches the Daily Show?
Heather Pollinger, Political Science

58 9:00 am
The Comedy of Political Participation: The Daily Show with Jon Stewart and American Youth
Larissa Dorman, Political Science

59 9:15 am
Female Competitiveness And Jealousy In The Gilmore Girls: Paris vs. Rory
Sarah Zoric, Communication

60 9:30 am
Empowering Subjugation: The Stealth Rhetoric of Dr. Laura Schlessinger
Alicia Walsh, Communication

61 9:45 am
Sex and the City: Orgasm-havin,’ High-heel-wearin,’ Workin’-woman, Love-chasin’ Feminism
Lena Schmidt, Women’s Studies

62 10:00 am
Radio Broadcasting and Popular Culture: Forming the Nation in Oaxaca, Mexico, 1920-1940
Octavio Garcia, Latin American Studies

Session A-4
Oral Presentation: Philosophical Thoughts
Friday, February 29th, 2008, 8:45 am
Location: Chantico

63 8:45AM
Participating in Time
Timothy Lewendon, Philosophy

64 9:00AM
Hume: a Skeptical, Coherent, Empiricist
Daniel Callies, Philosophy

65 9:15AM
Addiction: An Interpretation of David Hume’s Philosophical Analysis of Religion
Stanton Stock, Philosophy

66 9:30AM
A Much Needed Critique of Jean-Paul Sartre’s ‘Existentialism Is a Humanism’
David Burris, Philosophy

67 9:45AM
Dogen on Zazen, the Lotus Sutra and Upaya
Carol Aguilar, Philosophy

68 10:00AM
Two Birds with One Stone: Evidence for Biological and Computational Theories of Consciousness
Luis Favela, Philosophy

Session A-5
Oral Presentation:
Geological Sciences and Astronomy
Friday, February 29th, 2008, 8:45 am
Location: Casa Real

69 8:45 am
Relationship between QuickSCAT Satellite Sea Surface Winds and Sea Surface Temperatures off California and Northern Baja California
Michelle Apon, Geological Sciences

70 9:00 am
Impact of Rapid Global Warming on Microbenthic Community Structure: Using Rank-abundance Curves to Quantify Ecological Response to the Paleocene-Eocene Thermal Maximum
Amelinda Webb, Geological Sciences

71 9:15 am
Measuring the Slow-down of the White Dwarf’s Spin in AE Aquarii
Michael Dulude, Astronomy

72 9:30 am
On the Non-axisymmetric Nature of Hot Jupiter Exoplanets
Raj Pandya, Astronomy

Session A-6
Oral Presentation: Hydrology and Soil Erosion
Friday, February 29th, 2008, 8:45 am
Location: Council Chambers

74 8:45 am
Quantifying the Spatial and Temporal Distribution of Sediment Loading to the Perimeter of Construction Sites
Michael Bogonko, Water Resources Engineering
Session A-7
Oral Presentation: Chemical Biology
Friday, February 29th, 2008, 8:45 am
Location: Quetzalcoatl A

80  8:45 am  
New Insights into the Establishment of Left/Right Asymmetries in the Urochordate Ciona intestinalis: A Synthesis of Current Findings  
Alejandro Feria, Interdisciplinary Studies

81  9:00 am  
Conformational Analysis of an Antineoplastic Class of Macrocycles  
William Disman, Applied Mathematics

82  9:15 am  
Holliday Junctions and Other Branched DNA Repair Intermediates are In Vivo Targets of Bactericidal Peptides  
Adrian Contreras, Microbiology

Session A-8
Oral Presentation: Physics and Computational Sciences
Friday, February 29th, 2008, 8:45 am
Location: Quetzalcoatl B

83  8:45 am  
Magnetic Field Comparison Between Helmholtz Coils and a Simulated Three-coil Array  
Hau-Jian Liu, Physics

84  9:00 am  
Measurements And Extrapolations of Different Parameters that are Observed in the Geometry of the Crista Membrane of Mitochondria  
Mariam Ghochani, Physics

85  9:15 am  
The Cosmological Constant and Compact Stars  
Omair Zubairi, Physics

86  9:30 am  
Multimode Interferometry of Bose-Einstein Condensates in a Circular Waveguide  
Marty Kandes, Physics

87  10:00 am  
Structure and Thermal Evolution of Neutron Stars  
Rodrigo Negreiros, Computational Sciences

Session A-9
Oral Presentation: Student Services in Higher Education
Friday, February 29th, 2008, 10:30 am
Location: Calmecac

88  10:30 am  
The Relationship between Visits to Academic Advising, Students, and Student’s Success  
Melinda Schuricht, Psychology

89  10:45 am  
What’s at the Heart of Graduate Advising? An Exploration of the Student, Advisor and University Expectations  
Kim Scruton, Communication

90  11:00 am  
Incidence of Academic Probation in First-year Students Who Attended New Student Orientation  
Heather La Perle, Postsecondary Educational Leadership
<table>
<thead>
<tr>
<th>Session A-10</th>
<th>Oral Presentation: Cognitive Neurosciences</th>
<th>Friday, February 29th, 2008, 10:30 am</th>
<th>Location: Calmecac</th>
</tr>
</thead>
<tbody>
<tr>
<td>91</td>
<td>11:15 am</td>
<td>Examining Learning Outcomes in Student Personnel Preparation Programs</td>
<td>Jessica Hickmott, Postsecondary Educational Leadership</td>
</tr>
<tr>
<td>92</td>
<td>11:30 am</td>
<td>Changes in Arabic as a Foreign Language Programs in the United States since September 11 at Three Universities</td>
<td>Hope Jameson, Applied Linguistics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session A-11</th>
<th>Oral Presentation: Decision Support</th>
<th>Friday, February 29th, 2008, 10:30 am</th>
<th>Location: Chantico</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>10:30 am</td>
<td>How Do You Crash a Class?</td>
<td>Julius Remigio, Information Systems</td>
</tr>
<tr>
<td>101</td>
<td>10:45 am</td>
<td>Review Essay–The Box Spread and its Implications in International Finance</td>
<td>Jeremy Sanders, Finance</td>
</tr>
<tr>
<td>102</td>
<td>11:00 am</td>
<td>A Study of the Drivers of Entrepreneurship among African Refugees</td>
<td>Dena Lewerke, MSBA Entrepreneurship/Management</td>
</tr>
<tr>
<td>103</td>
<td>11:15 am</td>
<td>An Empirical Investigation of Sex-role Stereotypes and Charismatic Leadership</td>
<td>Stephen Vong, Industrial/Organizational Psychology</td>
</tr>
<tr>
<td>104</td>
<td>11:30 pm</td>
<td>Emotional Deviance in Customer Service Employees: Individual Factors and Perceived Job Stress</td>
<td>Taylor Peyton, Psychology</td>
</tr>
<tr>
<td>105</td>
<td>11:45 pm</td>
<td>Exit Polling is Used to Predict the Outcomes of Elections Before and During Election Day</td>
<td>Adria Van Loan, Statistics</td>
</tr>
<tr>
<td>106</td>
<td>12:00 pm</td>
<td>A Multinomial-Dirichlet Model for Analysis of Competing Hypotheses</td>
<td>Jonathan Wilson, Computational Statistics</td>
</tr>
</tbody>
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<thead>
<tr>
<th>Session A-12</th>
<th>Oral Presentation: Diversity and Pedagogy in Education</th>
<th>Friday, February 29th, 2008, 10:30 am</th>
<th>Location: Council Chambers</th>
</tr>
</thead>
<tbody>
<tr>
<td>93</td>
<td>10:30 am</td>
<td>Cognitive Sex Differences Reflected in a Visual Processing Bias for Movement Versus Object Characteristics</td>
<td>Jaclyn Yip, Psychology</td>
</tr>
<tr>
<td>94</td>
<td>10:45 am</td>
<td>The Effects of Normal Aging on Temporal Order Memory for Fixed Sequences</td>
<td>Trinh Luu, Psychology</td>
</tr>
<tr>
<td>95</td>
<td>11:00 am</td>
<td>Working Memory Span for Threat and Neutral Words In Social Phobia</td>
<td>Jessica Bomyea, Psychology</td>
</tr>
<tr>
<td>96</td>
<td>11:15 am</td>
<td>Pupillary Response to the Embedded Figures Test in Individuals with Autism Spectrum Disorder</td>
<td>Mishaela DiNino, Psychology</td>
</tr>
<tr>
<td>97</td>
<td>11:30 am</td>
<td>An Analysis of the Effects of Meditation on Reading Rates</td>
<td>Dave Deriso, Psychology</td>
</tr>
<tr>
<td>98</td>
<td>11:45 am</td>
<td>The Relationship Between EEG mu Rhythms, Empathy, and Mirror Neurons in Autism Spectrum Disorder</td>
<td>Ernesto Enrique, Biology</td>
</tr>
<tr>
<td>99</td>
<td>12:00 pm</td>
<td>Behavioral Test of Imagery Ability in Social Anxiety</td>
<td>Amanda Morrison, Psychology</td>
</tr>
</tbody>
</table>

<p>| 107         | 10:30 am                                               | Bilingual Pre-service Teachers: The Tensions and Support Systems that Influence their Teaching Ideology | Gustavo Gonzalez, Instructional Leadership for Linguistically and Culturally Diverse Students |</p>
<table>
<thead>
<tr>
<th>Session A-13</th>
<th>Oral Presentation: Mechanics and Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>108 10:45 am</td>
<td>Inequitable Achievement: Different Admissions Criteria, Same Predictors of Degree Attainment? Cynthia Avery, Educational Leadership</td>
</tr>
<tr>
<td>109 11:00 am</td>
<td>Beyond Equality, Equity and Adequacy: Intra-district Resource Allocations Impact on School Achievement Oscar Jimenez-Castellanos, Education</td>
</tr>
<tr>
<td>110 11:15 am</td>
<td>Towards an Understanding of Mexican Immigrant Parents in School Communities: Ethnographic Study of Immigrant Parents and their Struggle to Support their Children’s Path to Academic Success Pablo Ramirez, Education</td>
</tr>
<tr>
<td>111 11:30 am</td>
<td>Professional Noticing of Children’s Scientific Thinking Victoria Winters, Mathematics and Science Education</td>
</tr>
</tbody>
</table>

**Session A-14**

**Oral Presentation: Cell Biology I**

**Friday, February 29th, 2008, 10:30 am**

**Location: Quetzalcoatl A**

| 112 10:30 am | Soil Mechanics Analysis and Comparison to In-situ Test Methods of Soils Found in Potrero Canyon Richard Fernandez, Civil Engineering |
| 113 10:45 am | Instability Of Soils, Fines Migration Johan Gallay, Civil Engineering |
| 114 11:00 am | Monitoring Grain Breakage with Elastic Wave Afrildo Syahrial, Civil Engineering |
| 115 11:15 am | In-situ Processing of Titanium Dual Matrix Composites Vipulkumar Patel, Mechanical Engineering |
| 116 11:30 am | Implementation of Continuum Composite Material Model for High Strain Rates Pablo Salas Mendez, Applied Mechanics |
| 117 11:45 am | Uniaxial Freeze Drying for Aligned Pore Structure in Dye Sensitized Solar Cells Evan Khaleghi, Mechanical Engineering |

| 118 12:00 pm | Meso-scale Monte Carlo Sintering Simulation with Anisotropic Grain Growth Gordon Brown, Computational Sciences |

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Session A-14

**Oral Presentation: Cell Biology I**

**Friday, February 29th, 2008, 10:30 am**

**Location: Quetzalcoatl A**

| 119 10:30 am | Engineering of a Recombinant Vesicular Stomatitis Virus Encoding a Fluorescent Polymerase John Ruedas, Cell and Molecular Biology |
| 120 10:45 am | Chromosomal Rearrangements in Salmonella enterica vs. Typhi Strains Isolated from Human Carriers Dave Matthews, Cell and Molecular Biology |
| 121 11:00 am | How Much Replication? A Molecular Time Clock Approach to Determine the Amount of Viral Genome Replication In Vivo Scott Robinson, Cell and Molecular Biology |
| 122 11:15 am | Ascidians as a Novel Invertebrate Chordate Model for Alzheimer’s Disease Michael Virata, Cell and Molecular Biology |

Session A-15

**Oral Presentation: Gender and Status**

**Friday, February 29th, 2008, 10:30 am**

**Location: Quetzalcoatl B**

| 123 10:30 am | Hetaeras: Beauty, Brains, and Female Independence in Ancient Greece Jordan Stockberger, Political Science |
| 124 10:45 am | Political Autonomy or Marriage?: Young Oaxaquenas’ Perceptions of Education, Employment and Motherhood Nidia Merino, Anthropology |
| 125 11:00 am | Opening Space and Demanding a Place: Zapatista Women and their Vital Role in the Zapatista Movement Michelle Lenoue, Latin American Studies |
Session B-1
Poster Presentation:
Industrial and Organizational Behavioral Studies
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

126 11:15 am
No Mirrors No Makeup, No Men, No Problem?
A Rhetorical Analysis of Curves Strategies for Membership
Brandis DeZon, Communication

127 Poster #1 1:00-2:15 pm
Exploring the Influences of Different Levels of Support on Safety Training Climate
William Huynh, Applied Psychology

128 Poster #2 1:00-2:15 pm
Organizational Support and Stress: The Mediating Role of Helping Behaviors
Lindsay Palmer, Psychology

129 Poster #3 1:00-2:15 pm
The Perception of Risk in the Workplace
Ruben Ayala, Psychology

130 Poster #4 1:00-2:15 pm
The Mediating Role of Job Satisfaction in the Job Stress-Intent to Quit Relationship: A Study of Grocery Store Employees
Ryan Robinson, Psychology

131 Poster #5 1:00-2:15 pm
The Influence of Environmental Factors on Individual Safety Motivation
Ryan Mills, Psychology

132 Poster #6 1:00-2:15 pm
An Evaluation of Employment Interview Preparation Tactics and Interview Performance
Tressa Schultze, Psychology

Session B-1
Poster: Cognition, Cognitive and Behavioral Sciences
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

133 Poster #7 1:00-2:15 pm
Neuropsychological and Behavioral Performance in Children with Sleep Disordered Breathing
Norma Herrera, Psychology

134 Poster #8 1:00-2:15 pm
Emotional Memory for Faces and Words in Healthy Younger Adults
Shea Gluhm, Psychology

135 Poster #9 1:00-2:15 pm
Temporal Order Memory Deficits in Presymptomatic Gene Carriers for Huntington's Disease
Brianne Bartlett, Psychology

136 Poster #10 1:00-2:15 pm
Reduced Orrosensory-mediated Alcohol Avoidance in Mice Deficient for Transient Receptor Potential Channel Vanilloid Receptor 1 (TRPV1)
Norma Castro, Psychology

137 Poster #11 1:00-2:15 pm
Postnatal Choline Supplementation Reduces the Severity of Working Memory Deficits in Rats Exposed to Alcohol during Development
Ronald Schneider, Psychology

138 Poster #12 1:00-2:15 pm
Citalopram Augmentation of Antipsychotic Medication and Level of Functioning Among Middle Aged and Older Persons with Schizophrenia or Schzoaffective Disorder and Subsyndromal Depression
Ellen Solorzano, Social Work

139 Poster #13 1:00-2:15 pm
Pattern Separation in Older Adults
Chelsea Toner, Psychology

140 Poster #14 1:00-2:15 pm
Age-related Changes in Conditioned Flavor Preference in Rats
Adam Renteria, Psychology

141 Poster #15 1:00-2:15 pm
Effects of Normal Aging on Temporal Order Memory for Sequences
Tanya Diaz, Psychology

142 Poster #16 1:00-2:15 pm
Cognitive Function Predicted from Odor Memory, Body Mass Index and Apolipoprotein E Status in Older Adults
Esmeralda Valdivieso, Psychology
Session B-1
Poster: Computer Science and Engineering
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

143 Poster #17 2:15-3:30 pm
*Carbon Nanotubes (CNTs) Have Been the Subject of Intense Research in the Past Decade*
Preetam Borah, Mechanical Engineering

144 Poster #18 2:15-3:30 pm
*Piezoelectric L-Shaped Cantilever Manipulators*
Steven Chang, Mechanical Engineering

145 Poster #19 2:15-3:30 pm
*Comparison of Shape Analysis Techniques for HIV Protease-ligand Binding Prediction*
Himali Desai, Electrical Engineering

146 Poster #20 2:15-3:30 pm
*Measurement of Aortic Valve Leaflet Stain During LVAD Use*
Luz Enriquez, Bioengineering

147 Poster #21 2:15-3:30 pm
*Development of a Milk-based Coagulable Test Fluid for Mechanical Devices*
Lorraine Mallen, Bioengineering

148 Poster #22 2:15-3:30 pm
*High-current Density DC Magenethydrodynamics (MHD) Micropump with Bubble Isolation and Release System*
Bao Nguyen, Bioengineering

149 Poster #23 2:15-3:30 pm
*Bi - Objective Reliability Based Design Optimization Incorporating Statistical Data Uncertainty*
Raghu Sirimamilla, Aerospace Engineering

150 Poster #24 2:15-3:30 pm
*Current Activated Tip-based Sintering (CATS)*
Edsel Villar, Mechanical Engineering

151 Poster #25 2:15-3:30 pm
*Optimization of Damage Tolerant Structure*
Scott Wong, Aerospace Engineering

152 Poster #26 2:15-3:30 pm
*An Algorithm for Computing the Jones Polynomial of Closed Paths in the Integer Lattice*
Pik Shan Chan, Computer Science

153 Poster #27 2:15-3:30 pm
*Mitigating Performance Bottlenecks in the Computation of Kloosterman Sums on the TMS320C6713 Digital Signal Processor*
Tarun Bansal, Computer Science

154 Poster #28 2:15-3:30 pm
*Implementing Kloosterman Sum Computations on the TMS320C6713 Digital Signal Processor*
Krushna Bagde, Computer Science

155 Poster #29 2:15-3:30 pm
*Extending SB-PRAM to Support the Common CRCW Processor Model*
Vidya Sarangpani, Computer Science

156 Poster #30 2:15-3:30 pm
*Electric Current Processing of Advanced Materials*
Ahmed El Desouky, Mechanical Engineering

157 Poster #31 2:15-3:30 pm
*Biomaterial*
Yen-Shan Lin, Mechanical Engineering

158 Poster #32 2:15-3:30 pm
*Implementation of Immersed Boundary Method with Lagrangian Dynamic SGS Model*
Long Sun, Fluid Mechanics

Session B-1
Poster: Geological Sciences
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

159 Poster #33 3:30-4:45 pm
*Determination of Crustal Thickness in the Caucasus and Caspian Region Using Receiver Functions*
Rumi Takedatsu, Geology

Session B-1
Poster: Mathematics and Computational Sciences
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

160 Poster #34 3:30-4:45 pm
*Shannon’s Uncertainty and Kullback-Leibler Divergence in Microbial Genome and Metagenome Sequences*
Saja Akhter, Computational Sciences

161 Poster #35 3:30-4:45 pm
*Computational Investigation of the Reaction Thermochemistry and Kinetics of TTQ Cofactor*
Belynda Sanders, Biochemistry
Session B-2
Oral Presentation: Gender and Sexuality
Friday, February 29th, 2008, 1:15 pm
Location: Back Door

170  1:15 pm
Skirting the Issue
Tiffany Lopez, Religious Studies

171  1:30 pm
From Theory to Action: Creating a Feminist Nonprofit Organization-Feminist Art Space
Jeannette Wooden, Women’s Studies

Session B-3
Oral Presentation: Languages and Linguistics
Friday, February 29th, 2008, 1:15 pm
Location: Calmecac

175  1:15 pm
Temporal Asynchrony Sensitivity for Co-speech Gesture and Signs
Danielle Lucien, Speech Language Pathology

176  1:30 pm
A Crosslinguistic Analysis of English Verbs that Express Trajectory Movement in Young Latino Children
Meghan Fillipp, Speech, Language, and Hearing Sciences

177  1:45 pm
Time Course of Statistical Word Learning as Evidenced by Event-related Potentials
Georgia Hall, Psychology

178  2:00 pm
Fostering Protolanguage Meaning: Neonatal Communication Sensitivity
Tricia Yeomans, Communication Studies

179  2:15 pm
Emotion Triggers in Temporary Linguistic Regression
Tara Hack, Communication

180  2:30 pm
Experimental Research Articles in Linguistics: Subdisciplinary Variations in Macro- and Micro-level Structures
Masako Rodriguez, Linguistics
**Session B-4**  
Oral Presentation:  
Sustainability, Environment, and Conservation  
Friday, February 29th, 2008, 1:15 pm  
Location: Casa Real

181 1:15 pm  
*Towards a Sustainable Global Philosophy: Deconstruction as Method*  
David Alvarado, Philosophy

182 1:30 pm  
*Widening the Conception of Environmental Change: Aquaculture Development in Baja California and Implications for Mangrove Ecosystems*  
Emily Atkinson, Geography

183 1:45 pm  
*Defining the Oasis of Mulegé: Water Politics and Environmental Concerns in an Oasis Community in Baja California Sur, Mexico*  
Michael Topmiller, Latin American Studies

184 2:00 pm  
*The Influence of La Suerte Biological Research Station on a Community in Costa Rica: Implications for Attitudes and Awareness of Primate Conservation*  
Kelly Kreueger, Interdisciplinary Studies

185 2:15 pm  
*An Agent-based Model of Residential Development: Testing the Influence of Risk-taking Attitudes on Land Configuration*  
Anika Ligmann-Zielinska, Geography

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**Session B-5**  
Oral Presentation: Educational Technology  
Friday, February 29th, 2008, 1:15 pm  
Location: Council Chambers

186 1:15 pm  
*mLearning, or Blended Learning On-the-Go*  
Daniel Novak, Educational Technology

187 1:30 pm  
*A Concerns-based Adoption Model Study of University Instructors Engaged in Faculty Development for Enhancing Learning with Technology*  
Jim Julius, Educational Technology

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**Session B-6**  
Oral Presentation:  
Computer Science and Bioinformatics  
Friday, February 29th, 2008, 1:15 pm  
Location: Chantico

188 1:45 pm  
*The Effects of Instructor Immediacy in Online Learning Environments*  
Maria Schutt, Educational Technology

189 2:00 pm  
*E-Coaching in Organizations: A Study of Features, Practices, and Determinants of Use*  
Rebecca Frazee, Educational Technology Leadership

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**Session B-7**  
Oral Presentation: Chemistry and Biochemistry  
Friday, February 29th, 2008, 1:15 pm  
Location: Presidential Suite

190 1:15 pm  
*Providing Vision and Navigation Features to a Humanoid Robot*  
Christian Peralloza, Computer Engineering

191 1:30 pm  
*Automatic Detection of Free-ranging Blue Whales’ D and B Calls in the Presence of Multiple Cetacean Species*  
Shyam Kumar Madhusudhana, Computer Science

192 1:45 pm  
*A Static Data Placement Strategy towards Perfect Load-balancing for Distributed Storage Clusters*  
Deepthi Madathil, Computer Science

193 2:00 pm  
*Comparison of Learning Schemes for ANN QSAR Models in HIV Drug Design*  
Akmal Aulia, Computational Sciences

194 2:15 pm  
*A Framework for Evaluating H.264 Video Streaming over 802.11 Wireless Ad-Hoc Networks*  
Kashyap Kambhatla, Computational Sciences

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195 1:15 pm  
*Synthesis and Cytotoxicity of di-Sansalvamide A Macrocycle Derivatives*  
Melinda Davis, Chemistry
196 1:30 pm  
*Synthesis and Biological Evaluation of FR235222 Derivatives Serving as Histone Deacetylase Inhibitors*
Erinprit Singh, Chemistry

197 1:45 pm  
*Characterization of Drosophila Relish phosphorylation in vitro*
Michaela Norrbom, Biochemistry

198 2:00 pm  
*Observation of Anomalously High Order Kinetics in the Simplest Reaction Between a Gas and a Semiconductor Surface: O2 – Si(100)*
Mark Kottke, Chemistry

199 2:15 pm  
*The Role of Symbiotic Bacterial Siderophores in the Development of Primary Productivity in the Ocean*
Shady Amin, Chemistry

200 2:30 pm  
*Development of Bifunctional Ligands and Catalyst for Alkene Isomerization and its Application to Deuteration*
Reji Nair, Chemistry

201 2:45 pm  
*H/D Exchange Catalyzed by Bifunctional N-Heterocyclic Carbene Complexes*
Zephen Specht, Chemistry

Session B-8  
Oral Presentation: Cell Biology II  
Friday, February 29th, 2008, 1:15 pm  
Location: Quetzalcoatl A

202 1:15 pm  
*Pim-1 Stimulates Cardiac Progenitor Cell Proliferation*
Travis Cottage, Biology

203 1:30 pm  
*Transcriptional Induction of a Prototypical ERSR Protective Gene upon Simulated Ischemia*
Shirin Doroudgar, Cell and Molecular Biology

204 1:45 pm  
*Notch Signaling in Adult Mouse Myocardium*
Natalie Gude, Cell and Molecular Biology

205 2:00 pm  
*Lentiviral Gene Delivery of Pim-1 to Cardiac Progenitor Cells Repairs Infarcted Myocardium*
Kimberlee Fischer, Cell and Molecular Biology

206 2:15 pm  
*Progenitor Cells Isolated From the Myocardium Can Be Grown in Culture and Differentiated to Express Cardiac Markers In Vitro*
Brandi Bailey, Cell and Molecular Biology

Session B-9  
Oral Presentation: Nutrition, Perceptions, and Health  
Friday, February 29th, 2008, 1:15 pm  
Location: Quetzalcoatl B

207 1:15 pm  
*Patient Correlates of Treatment Engagement Following Initial Evaluation Among Patients with Co-occurring Disorders*
Christopher Fowler, Psychology

208 1:30 pm  
*Lifetime Experiences with Racism and Perceptions of Barriers to Participation in Clinical Trials in African American Women*
Rubie Blue, Psychology

209 1:45 pm  
*The Effect of Heat on Dark Chocolate and its Biological Function in Serum Lipid Profiles of Rats*
Sarah Reese, Foods and Nutrition

210 2:00 pm  
*The Role of Nutrition in Mitigating Plumbism and Consequent Cognitive Maladies*
Carlos Medina, Anthropology

211 2:15 pm  
*Improved Drinking Water Infrastructure, Management and Community Health in Rural Border Indigenous Communities of Baja California*
Paula Stigler, Environmental Health Sciences

212 2:30 pm  
*Strawberries: Is Organic Better than Conventional?*
Fatima Villalobos, Nutritional Science
Session B-10
Oral Presentation:
Creative Activities and Research in the Arts I
Friday, February 29th, 2008, 3:00 pm
Location: Back Door

213  3:00 pm
  What the Heck is That! A Brief History of Kinetic Art
  Brad Johns, Fine Art: Furniture

214  3:20 pm
  The Innovations of Max Roach through Analysis and Comparative Study
  Jeanette Kangas, Music/Percussion/Performance

215  3:40 pm
  Creating a Unified Design for the Costumes and Puppets of Jungle Book: Margaret Larlham's (SDSU Professor of Theatre) Adaptation of Rudy Kipling's Classic Story
  Shirley Pierson, Theatre Design

216  4:00 pm
  Rituality
  Karen Noble, Art History

217  4:20 pm
  Making Connections: A Path To Greater Artistry
  Wyatt Ellison, Interdisciplinary Studies

Session B-11
Oral Presentation: Past and Present Indigenous Communities in the Californias
Friday, February 29th, 2008, 3:00 pm
Location: Casa Real

218  3:00 pm
  The Material Culture of the Baja California Kumeyaay
  Katherine Sholan, Anthropology

219  3:15 pm
  From the Bottom Up: Creating a Collaborative Community Museum in Tecate, Baja California
  Kara Johnson, Anthropology

220  3:30 pm
  Cultural Revitalization among Indigenous Communities of Baja California
  Michael Wilken, Anthropology

221  3:45 pm
  Food, Medicine, and Healing Roles: Exploring Situational Plant Use among Four Native American Tribes
  Raven Keppinger, Anthropology

222  4:00 pm
  Regional Network Analysis Situating Lost Valley in the Inter-Site Landscape
  Victoria Kline, Anthropology

223  4:15 pm
  Better Vision Through Glasses
  George Kline, Anthropology

Session B-12
Oral Presentation: Geotechnical and Environmental Engineering
Friday, February 29th, 2008, 3:00 pm
Location: Chantico

224  3:00 pm
  Effectiveness of Unconventional Adsorbents in Removing Nutrients and Heavy Metals from Water Streams
  Shashikanth Gajaraj, Environmental Engineering

225  3:15 pm
  Hydraulic Capacity of Compost Buffers for Treating Nonpoint Source Runoff
  Sergio Naranjo, Civil Eng / Water Resources

226  3:30 pm
  Plankton Filtration with Compressible Media: Potential for Ballast Water
  Vasiliki Karanikola, Civil Engineering

227  3:45 pm
  Hydraulic Geometry Relations for the Amazon Basin Based on Satellite Imagery, Stage-discharge and Hydrologic Characteristics
  Venkat Gummadi, Civil

228  4:00 pm
  Sorption-induced Swelling of Tire Derived Aggregate: Experimental Study
  Vicky Anh Ngo, Civil Engineering

229  4:15 pm
  Effects of Crushing in Soils Due to Changes in the Loading Process
  Lilian Rodriguez, Civil Engineering
### Session B-13
Oral Presentation: Political and Ethical Issues  
Friday, February 29th, 2008, 3:00 pm  
Location: Council Chambers

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<tr>
<th>Time</th>
<th>Presentation</th>
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<tbody>
<tr>
<td>230</td>
<td>3:00 pm</td>
<td><strong>Human Reproductive Cloning &amp; Parfit’s Non-identity Problem</strong></td>
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<td>Joyce Havstad, Philosophy</td>
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<td>231</td>
<td>3:15 pm</td>
<td><strong>The Sinister Science of the Human Betterment Foundation and a Rhetoric of Motives</strong></td>
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<td>Kathy Swift, Rhetoric and Writing Studies</td>
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<td>232</td>
<td>3:30 pm</td>
<td><strong>American Political Traditions and the Social Science Method: Reinterpreting the Work of Richard Hofstadter</strong></td>
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<td>Matthew June, History</td>
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<td>233</td>
<td>3:45 pm</td>
<td><strong>Authoritarianism and Democracy in Twenty-first Century Mexico: Subnational Authoritarian Enclaves and the Territorial Unevenness of Democracy</strong></td>
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<td>Reynaldo Rojo Mendoza, Latin American Studies</td>
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### Session B-14
Oral Presentation: Migration and Globalization  
Friday, February 29th, 2008, 3:00 pm  
Location: Quetzalcoatl A

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<th>Time</th>
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<tr>
<td>234</td>
<td>3:00 pm</td>
<td><strong>The Migration of Mexican Indigenous Women from Oaxaca</strong></td>
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<td>Nadia Merino Chavez, Political Science &amp; Chicana/o Studies</td>
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<td>235</td>
<td>3:15 pm</td>
<td><strong>Migration as Resistance: The Impact of Historical and Current Migration on Polish Nationalism</strong></td>
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<td>Marta Jankowska, Geography Information Science</td>
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<td>236</td>
<td>3:30 pm</td>
<td><strong>Is Immigration a Racial Issue? Anglos’ Attitudes on Immigration Policies in a Border County</strong></td>
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<td>John Ayers, Political Science</td>
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<td>237</td>
<td>3:45 pm</td>
<td><strong>Demographic Changes and Social Conflicts in Post-Katrina New Orleans</strong></td>
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<td>Arthur Saenz, Chicana and Chicano Studies</td>
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### Session B-15
Oral Presentation: Health Behaviors  
Friday, February 29th, 2008, 3:00 pm  
Location: Quetzalcoatl B

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<th>Time</th>
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<tr>
<td>238</td>
<td>4:00 pm</td>
<td><strong>The Rhetoric of Anti-globalization: Imperialism and War</strong></td>
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<td>Tyrone Coronado, English: Rhetoric and Writing</td>
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<td>239</td>
<td>4:15 pm</td>
<td><strong>Preliminary Review of Social and Economic Impacts of Korean Transnational Financial and Human Capital in Guatemala</strong></td>
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<td>Will Anderson, Geography</td>
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Sessions: Saturday, March 1st

Session C-1
Oral Presentation: Higher Education and Curriculum
Saturday, March 1st, 2008, 8:30 am
Location: Calmecac

246 8:30 am
Visualizing Variation in University Classroom Discourse
Gregory Verutes, Geography

247 8:45 am
Lexico-Grammatical Patterns In Discourse Structure: The Case of University Classroom Talk
Melanie Piche, Linguistics

248 9:00 am
Facing the Storm: An Approach to Problem-Solving Curriculum
John Patel, Policy Studies in Language and Cross-Cultural Education

249 9:15 am
Facing the Storm: An Approach to Problem-Solving Curriculum
John Patel, Policy Studies in Language and Cross-Cultural Education

250 9:30 am
The Bone Box: The Development of a Skeletal Biology Teaching Resource
Marlo Nalven, Anthropology

251 9:45 am
Empowering a Border Community across Family Literacy Circles
Robert Stone, Teacher Education

Session C-2
Oral Presentation:
MEMS and Electrical Devices Design
Saturday, March 1st, 2008, 8:30 am
Location: Casa Real

252 8:30 am
WiBandAccelero - New Concepts in Wide Bandwidth Resonant Frequency Tunability in MEMS Accelerometers
Amandeep Singh, Mechanical Engineering

253 8:45 am
Electrically Active Microarray of 3D Carbon MEMS Electrodes for Pathogen Detection Systems
Jiae Shin, Mechanical Engineering

254 9:00 am
Investigations on Ultra-wide Bandwidth Planar Microstrip Slot Antennas
Sunil Kumar Rajgopal, Electrical Engineering

255 9:15 am
Additional Design Parameters and Low-Cost Fabrication Techniques for Aperture-Coupled Microstrip Patch Antennas
Christopher Meagher, Electrical Engineering

256 9:30 am
A New Generation of High-sensitivity Biochemical Sensors using PMN-PT Single Crystal Thin Membranes
Michael Frank, Bioengineering

257 9:45 am
Design of Dual Band Circular Waveguide Horn Antennas
Bharat Thummala, Electrical Engineering

Session C-3
Oral Presentation: Social and Behavioral Health
Saturday, March 1st, 2008, 8:30 am
Location: Council Chambers

258 8:30 am
Meditation: An Alternative Treatment for Addictive Behaviors
Tonya Warren, Philosophy

259 8:45 am
College Students: The New Face of Problem Gambling? Gambling Behavior and Prevalence Among San Diego State Students
Jolene Weston, MSBA-Marketing

260 9:00 am
Role Model's Influence on Pre-Teens' Alcohol Use
Ding Ding, Health Promotion and Behavioral Sciences

261 9:15 am
Analysis of Paternal Effect on Cognitive Performance in Early Life
Anna Bellatorre, Sociology
262  9:30 am  Predictors of Condom Use Among Repeat HIV-Negative Testing Men who have Sex with Men
Carol Sipan, Health Behavior

263  9:45 am  A Comparison between Parent’s and Children’s Reports of Parenting Practices
Joshua West, Health Behavior

Session C-4
Oral Presentation: Communication Studies
Saturday, March 1st, 2008, 8:30 am
Location: Presidential Suite

264  8:00 am  The Jewish Influence in the Communication Discipline
Robin Goret, Mass Communication and Media Studies

265  8:45 am  The Language of Love: Modifications and Emerging Patterns of Self-disclosure through Computer-mediated Communication
Makenzie Phillips, Communication Studies

266  9:00 am  Affect/Expression/Connection: Examining the Sharing of Music in Relationship Dyads
Cameron Sublett, Communication Studies

267  9:15 am  Factors Affecting Communicative Practices in Everyday Activity
Lea Ciceraro, Communication Studies

Session C-5
Oral Presentation: Ecology
Saturday, March 1st, 2008, 8:30 am
Location: Quetzalcoatl A

268  8:30 am  Effects of Invasive Plants on Coastal Sage Scrub Soil and Microbial Communities of Mission Trails Regional Park
Irene Hale, Biology

269  8:45 am  Effects of Habitat Fragmentation and Patch Size on Recruitment and Abundance of Kelp Forest Fishes
Andres Deza, Biology

270  9:00 am  Predation in Eel Grass Beds: Do Trophic Manipulations Result in Cascading Effects?
Levi Lewis, Ecology

271  9:15 am  Atlas to the Terrestrial Slugs and Snails of Western Washington: Documenting Invertebrate Species and Populations
Casey Richart, Evolutionary Biology

Session C-6
Oral Presentation: Literature Through the Ages
Saturday, March 1st, 2008, 8:30 am
Location: Quetzalcoatl B

272  8:30 am  Reading the Tragedy of the Maid: Reading Myself
Stacy Furrer, English

273  8:45 am  Allowing Sulpicia Agency
Emily Pace, History

274  9:00 am  The Transformation of the Fairy Tale Genre: A Postmodern Analysis
Ellen Nef, English

275  9:15 am  The Transformation of Witches in Children’s and Young Adult Literature
Marie Soriano, English

276  9:30 am  Proteus as Ur-Character in Kurt Vonnegut’s Early Fiction
Mark Young, English

277  9:45 am  Muriel Rukeyser’s Wars of Compassion and Possibility
Veronica Andrew, English

278  10:00 am  Bret Harte’s Later Stories
Alan Silva, English
Session C-7
Oral Presentation:
Creative Activities and Research in the Arts II
Saturday, March 1st, 2008, 10:15 am
Location: Back Door

279 10:15 am
*Medea: Mind Games and Manipulation*
Joan Hurwit, Theatre

280 10:35 am
*Ewe War Songs of Ghana: Revealing Social Values and Attitudes through their Music and Dance*
Laurel Grinnell, Ethnomusicology

281 10:55 am
*Desire*
Lilyana Bekic, Jewelry and Metals

282 11:15 am
*An Analysis of Selected Improvisational Tools of Oscar Peterson*
Reka Bodis-Parker, Jazz Performance

Session C-8
Oral Presentation: Applied Physiology
Saturday, March 1st, 2008, 10:15 am
Location: Casa Real

283 10:15 am
*Physiological Effects of TASER® X-26 after Intense Exercise*
Amanda Barnard, Exercise Physiology

284 10:30 am
*A Comparison of the Female Athlete Triad in Runners Versus Non-athletes*
Colleen Costigan, Exercise Physiology

285 10:45 am
*Relationships Between Physical Fitness, Physical Activity and Psychosocial Variables in Breast Cancer Survivors*
Deborah Taylor, Exercise Physiology

286 11:00 am
*On the Determination of Ventilatory Threshold and Respiratory Compensation Point via Respiratory Frequency*
Daniel Cannon, Exercise Physiology

Session C-9
Oral Presentation: Applied Physiology
Saturday, March 1st, 2008, 10:15 am
Location: Casa Real

287 11:15 am
*Retrospective Chart Review of Patients who have had Surgery for Exostosis.*
John King, Audiology

288 11:30 am
*Investigating Cerebral Perfusion in Stroke Survivors with Aphasia Using Arterial Spin Labeling*
Kathleen Brumm, Language and Communicative Disorders

Session C-10
Oral Presentation: Violence and Relationships
Saturday, March 1st, 2008, 10:15 am
Location: Council Chambers

295 10:15 am
*Death Meditation, Terror Management Theory and Worldview Defense*
Ana Duenas, Psychology
Session C-11
Oral Presentation: Psycholinguistics and Speech Perceptions
Saturday, March 1st, 2008, 10:15 am
Location: Presidential Suite

300 10:15 am
The Effects of High-frequency Audibility on the Use of Vocal Tract Length Cues for Talker Segregation
Nicole Conrad, Audiology

301 10:30 am
Differential Relationships of Spoken and Written Language: Evidence from Two Clinical Populations
Darin Woolpert, Language and Communicative Disorders

302 10:45 am
Word Frequency Effects on Lexical Processing in the Auditory Modality as Measured by Event-related Potentials
Marisa Sizemore, Language and Communicative Disorders

303 11:00 am
Influence of Spanish Proficiency and Phonotactic Probability on Adult Spanish Non-word Repetition
Skott Freedman, Language and Communicative Disorders

304 11:15 am
Neural Underpinnings of Speech Rate Effects on Auditory Sentence Comprehension
Josee Poirier, Language and Communicative Disorders

Session C-12
Oral Presentation: Evolutionary Biology
Saturday, March 1st, 2008, 10:15 am
Location: Quetzalcoatl A

305 10:15 am
The Role of Brachiation in the Evolution of Hominin Locomotion
Erin Woodcock-Blankenship, Anthropology

306 10:30 am
The Parallel Evolution of Nectar Robbing in Flowerpiercers (Diglossa and Diglossopsis)
William Mauck III, Biology

307 10:45 am
Molecular Phylogenetics of the Garden Slender Salamander Batrachoseps Major in Baja California
Anny Peralta Garcia, Biology

308 11:00 am
Systematics of Pogogyne (Lamiaceae) Using Molecular Sequence Data
Michael Silveira, Biology

Session C-13
Oral Presentation: Health Behaviors II
Saturday, March 1st, 2008, 10:15 am
Location: Quetzalcoatl A

309 10:45 am
Nurse Managers’ Leadership Styles and Nurse Job Satisfaction
Kim Reina Failla, Nursing

310 11:00 am
Predictor Variables of Organizational Commitment in Turbulent Environments
John Boucher, Nursing

311 11:15 am
A Spatial Analysis of Self-reported Malaria Prevalence in Accra, Ghana: The Role of Urban Agriculture
Justin Stoler, Epidemiology

312 11:30 am
Surveillance, Diagnosis, and Treatment of Schistosomiasis and Strongyloidiasis in Sudanese Refugees, San Diego County
Jamie Wolf, Epidemiology
Session A-1
Poster: Biological Sciences and Biochemistry
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

#1 8:45-10:00 am
Synthesis and Structural Activity Relationship Analysis of Sansalvamide A Derivatives against Drug Resistant Cancer Cell Lines
Robert Sellers, Chemistry
Shelli McAlpine, Chemistry

Sansalvamide A is an antineoplastic macrocyclic depsipeptide isolated from the marine fungus Fusarium by William Fenical in 1999. Studies have shown potent cytotoxicity against NCI’s 60 cell line panel for the natural product and ten-fold inhibition over the depsipeptide for the pentapeptide derivative. A library of over 100 derivatives of the compound have been synthesized and analyzed to show promising bio-potency against pancreatic, colon, breast, prostate and melanoma cancer cell lines. Six derivatives show over 100-fold differential selectivity for cancer cell lines over normal cell lines and are over 100 times more active against pancreatic cancer cell lines than compounds used clinically to treat these cancers (e.g., 5-FU). Through use of inhibition assays and analysis of Structural Activity Relationships (SARs), trends that emerge can be used to modify the scaffold in order to develop more potent compounds. The synthesis of the multiple San A derivatives follow a well developed protocol common to all of the cyclic pentapeptide molecules and their procedures will be discussed. Cytotoxicity was determined via 3H thymidine inhibition assays using two pancreatic cancer cell lines (PL45 and BxPC-3) and two drug-resistant colon cancer cell lines (HCT-116 and HCT-15). Through SAR analysis compounds containing a single N-methyl and/or D-amino acid moiety show increased potency in cell-based assays. These moieties appear to be significant in presenting the active conformation of the molecule to its biological target. Further studies and synthesis of additional analogs will be performed in developing more potent leads for treating multiple drug-resistant cancers.

#2 8:45-10:00 am
Exposure to Volatile Organic Compounds in a Retail Environment
Gloria Zarate, Chemistry
Dale Chatfield, Chemistry

The exposure to volatile organic compounds (VOCs) in the home and the workplace has raised concern about the potential of chronic health effects. Older dwellings that have high ratios of recirculated air and inadequate ventilation are of particular concern when materials made of petroleum and coal-derived products are present. Noticeable concentrations of VOC’s have been noticed by the authors in several retail tire stores in the San Diego area, and this was prompted an examination of the air in several local stores. The purpose of this study is to analyze air samples from tires stores to identify and quantify the levels of volatile organic compounds present in these stores. Of particular concern are the aromatic compounds benzene, toluene, xylenes and branched alkylbenzenes. The second part of this study is to analyze breath from subjects exposed to the same air, in order to determine the body burden from these chemicals at time intervals after exposure. Several retail tire stores were selected for this study that have a customer waiting rooms that contained tires on display or in storage racks. An indoor air sample and the breath from a subject exposed to the air were collected from each retail store. Additional breath samples were collected from the subject over the next 48 hours. The samples were analyzed by chromatography-mass spectrometry with a purge and trap gas collector. Data from the subjects and controls was normalized to units of ug/kg body weight-min and compared to the levels observed in the ambient air samples. Data on aromatic compounds, present and their measured half-life in the subjects will be discussed. Preliminary results show that some VOCs stay in the body for more than 24 hours.

#3 8:45-10:00 am
Chemical Synthesis of Micromide
Ari Widjaja, Chemistry
Mike Bergdahl, Chemistry

Introduction: Micromide is a cytotoxic alkaloid isolated from a species of marine cyanobacterium of the genus Symploca. Many biologically active natural products have been isolated from cyanobacteria. Those include cytotoxins, immunosuppressives, antibiotics, ichthyotoxins, tumor promoters, and proteinase inhibitors. Recent efforts have focused on screening marine cyanobacteria for natural products that are effective against multi-drug resistant solid tumors. Micromide was found to display significant selectivity towards solid-tumor cell lines. For example, it displayed an IC50 number of 260 nM against KB cells. A distinctive structural feature of the target molecule is that it contains four N-methylated peptide bonds. Several naturally occurring biologically active peptides, for example, cyclosporins, dolastatins, and didemnins are characterized by the presence of N-methylated peptide bonds in their chains. It is well known that N-methylation can change the conformation of peptides affecting their secondary and tertiary structures. Methods and Results: Our presented total synthesis illustrates a highly convergent strategy for the total synthesis of the target molecule. Among the key synthetic manipulations involved are N-methylation of modified amino acids and their subsequent amide coupling reactions, an asymmetric
Laser wave mixing is presented as an ultrasensitive optical absorption-based detection method for profiling cellular proteins and identifying specific proteins within a single bio cell. Wave mixing offers important advantages including enhanced sensitivity, small probe volume, small analyte requirement and high spatial resolution that is suitable for cellular protein analyses. When two coherent beams are mixed in the presence of an absorbing analyte, dynamic gratings are produced which divert incoming photons in the form of coherent laser-like signal beams. Hence, the analytical signal can be collected with virtually 100% collection efficiency and with little or no optical background noise. The signal has a cubic dependence on laser power and a quadratic dependence on analyte concentration, and hence, it is especially suitable for monitoring small changes in analyte properties. Small wave-mixing probe volumes (nanoliters to picoliters) allow sensitive absorption detection of proteins within a single cell, and wave mixing is inherently suitable as a detector for capillary electrophoresis.

Combining In Vivo and In Silico Screening for Protein Stability

Nesreen Barakat, Biochemistry
John Love, Chemistry

Designing proteins with increased stability and conformational specificity has many important applications in the field of biotechnology. The overall goal of my project is to develop and combine in vivo and in silico screening and analysis to select stable proteins from a large combinatorial library of proteins. Our in vivo screening method is based on the stability of the test proteins, and is independent on protein function. In addition, the data obtained from the in vivo screen is further analyzed and screened in silico by performing computational mutagenesis with the ORBIT protein design package and also by running molecular dynamics calculations on specific test proteins with the GROMACS molecular mechanics package.

Ribosomal RNA Production is Up-Regulated in E. Coli in Response to Expression of Exogenous Genes that Contain the Rare Arg Codons AGA/AGG

M Ruetsche, Biochemistry
Tracey Love, Speech Language and Hearing Sciences

Background: Lymphoid enhancer-binding factor-1 (LEF-1) is a member of the high mobility group (HMG) family of proteins. Production of the LEF-1 HMG DNA binding domain in E. coli is dependent on co-transformation with a plasmid (pUBS520-dnaY) that constitutively expresses the tRNA for the rare arginine codons AGA/AGG. Small wave-mixing probe volumes (nanoliters to picoliters) allow sensitive absorption detection of proteins within a single cell, and wave mixing is inherently suitable as a detector for capillary electrophoresis.
AGG/AGA. The lack of arginine tRNA expression in normal E. coli prevents the polymerase from translating the exogenous LEF-1 mRNA that contains six of the rare arginine codons (in fact, two are tandem). We hypothesize that, in the absence of the pUBS520-dnaY plasmid, the ribosomes stall upon encountering these rare codons and the stalled ribosomes are thereby no longer able to function in the translation of any genes. The cells respond to this situation by up-regulating the production of ribosomal RNA. We have demonstrated this experimentally. When comparing cells from the non-induced and induced cultures, the induced culture (with IPTG) shows an up-regulation of ribosomal RNA and virtually no protein production. Methods: The bacterial cell line used is BL21(DE3) and made competent with calcium chloride. Bacteria were transformed with a plasmid pET-21a(+) (HMG-86). The cells were grown in Luria Broth to an optical density of 600 nm and induced with IPTG at a concentration of 1 mM. After induction, the cells were grown for two hours then boiled to lyse the cells. The cells were subjected to SDS-protein-denaturing loading buffer and subsequently analyzed on a 13 percent polyacrylamide gel by PAGE electrophoresis. Results: Observations of the induced cells without pUBS520-dnaY indicated an up regulation of the ribosomes as well as the absence of exogenous protein production. There was an abundant amount of mRNA in these cells as well. In comparison, the induced cells containing pUBS520-dnaY had a lower amount of ribosomal RNA and mRNA as well as greater amounts of the LEF-1 protein. The uninduced cells with or without pUBS520-dnaY all had approximately the same amount of ribosomal RNA and no amount of mRNA was observed. Conclusion: Induced cells without pUBS520-dnaY accumulate exogenous mRNA and rRNA because the cells do not produce the tRNA that recognizes the rare codon sequences for arginine. Therefore the polymerase cannot continue the translational process. With the addition of pUBS520-dnaY the bacteria cell line is able to produce the exogenous proteins. High production of mRNA in induced cells without pUBS520-dnaY as well as the increased production of the protein by the induced cells with pUBS520-dnaY indicates that translation is stalled by the rare arginine codons. Acknowledgments: Funding for this project has been provided by The Petroleum Research Fund, The San Diego Foundation, and California Metabolic Research Foundation.

#9 8:45-10:00 am

Cross-platform Microarray Gene Expression Changes in Neonatal Rat Cardiocytes Responding to the Antidiabetic Drug Rosiglitazone

Denise Buenrostro, Biology
Paul Paolini, Biology

Recent reports regarding a possible link between use of the drug rosiglitazone and incidence of cardiovascular death from heart failure and myocardial infarct has created a controversy regarding this drug’s safety. A number of recent and ongoing clinical data studies indicate that the link is not statistically significant (Diamond et al., Ann. Int. Med. 147, 2007). However, earlier studies from our laboratory have demonstrated a positive inotropic effect of the drug via the short-term calcium signaling pathway (Shah et al. Cell. Physiol. Biochem. 15: 41-50; 2004) We have employed two different microarray platforms to study this response to rosiglitazone, first with Motorola/Amersham/GE BioSciences Uniset Rat I genomic microarray chips and a CodeLink Bioarray Flex Chamber, and more recently with Illumina’s BeadArray™ microarray technology, to examine the time course gene expression of neonatal Rattus norvegicus ventricular myocytes with rosiglitazone treatment. We have also used calcium ratio fluorescence microscopy measurements and kinetic analysis from contracting myocytes with video tracking to provide functional data (the calcium transient, sarcomere shortening) to relate to observed expression changes. Significantly regulated genes in rosiglitazone

#8 8:45-10:00 am

The Role of Phage P22 gp26 Tailspike Protein in the Ejection of Phage DNA

Justine AhTye, Biology
Stanley Maloy, College of Sciences

Bacteriophage P22 is a temperate phage that is known to have a high specificity for Salmonella enterica sv. Typhimurium (Stm) amongst other bacteria. P22 is a high transducing phage and is commonly used to move genes from one bacterium to another. In the infection process, the first step is attachment of the phage to the outer membrane of Salmonella. Following attachment, P22 must insert its DNA into the cell. P22 does so by using its short contractile tailspike to inject its DNA into the periplasm space. Exactly how the P22 tailspike interacts with the Salmonella outer membrane to inject its DNA is not clear. It is believed that the tailspike protein gp26 associates with an outer membrane receptor of Stm to channel phage DNA into the periplasm of the host. We hypothesize that the gp26 tailspike protein directly associates with the outer membrane and thus transports P22 DNA into the host periplasm independent of any host factors. It has been shown by Casjens et al. that gp26 has a c-terminus with a hydrophobic motif that may allow the protein to associate with the outer membrane. To test our hypothesis a pET30 expression vector was used to clone gp26. The n-terminus of gp26 was given a hexa-histidal s-tag and nickel purified. A specific Salmonella rfaE mutant lacking the presence of lipopolysaccharide on the outer membrane was utilized to investigate specific protein-membrane association by means of western blots. The results of our investigation show that gp26 can directly associate with the host membrane. This suggests the tailspike protein, gp26, is the main component of the interaction between the P22 tail and the Salmonella membrane.

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treatment include 671 genes involving lipid metabolism and 288 genes associated with fatty and monooxyacid acid metabolism. While some gene expression changes from microarray data were validated by real-time PCR, we have now used cross-platform microarray data validation. Our results confirmed that fatty acid and lipid metabolism pathway genes are overrepresented with drug treatment. We are currently analyzing the data to determine the regulatory networks and pathways that are directly involved in the excitation-contraction coupling—the calcium signaling pathway. Observed early up-regulation of the cardiac ryanodine receptor gene, Ryr2, one of the SERCA genes, Atp2a3, and the NCX genes Slc8a1 and Slc8a2 could be responsible for the improved contractile behavior of rosiglitazone-treated cells.

### #10 8:45-10:00 am

**Histone Regulation During the Cell Cycle of the Human Malaria Parasite Plasmodium falciparum**

Lynelle Garnica, Biology

The human malaria parasite, *Plasmodium falciparum*, causes over one million deaths each year worldwide. In the past few decades, Plasmodium has gained resistance to most current drug treatments, thereby creating a serious need to identify new drug targets. Understanding the biology of the malaria parasite is currently under investigation. For example, little is known about the particular mechanisms involved in regulation of gene expression in Plasmodium. The role of histone post-translational modifications has been recently highlighted as one of the main mechanisms involved in transcriptional regulation in eukaryotic cells. The aim of our research is to determine the role histone modification may have on chromatin structure when the parasite completes its erythrocytic cell cycle. In our investigation, we extracted parasite proteins at each major cell cycle stage (i.e. ring, trophozoite, and schizont). Western blots were performed using specific anti-histone antibodies to detect target core histone proteins. Western blot analysis for histone H3 showed a strong signal during the schizont and ring stages. An immunoprecipitation experiment was then performed on histone H3. Results of such experiments will then be followed by mass spectrometry analysis. We expect to detect potential post-translational modifications throughout the parasite cell cycle progression in order to improve our understanding of Plasmodium transcriptional control. Ultimately these types of analyses will facilitate a rational approach to new drug discovery. Supported by the NIH/NIGMS SDSU MARC Program 5T34GM08303; and by National Science Foundation’s (NSF) Alliance for Graduate Education and the Professoriate (AGEP) program HRD-0450366.

### #11 8:45-10:00 am

**The Mechanism of Superinfection Exclusion of the P22 sieA Protein**

Matthew San Pedro, Biology  
Stanley Maloy, College of Sciences

Background: Susskind and Botstein (1979) have shown that the sieA protein expressed by a P22 lysogen is responsible for excluding superinfecting DNA. However, the mechanism of how sieA prevents superinfection is not known. Hofer, et. al. (1995) has shown that sieA localizes to the cytoplasmic membrane of *Salmonella Typhimurium*. Another protein that associates with the cytoplasmic membrane of *Salmonella Typhimurium* is the gp16 pilot protein that is closely associated with the P22 DNA (Perez, et. al. unpublished). Together with gp7 and gp20, gp16 is responsible for targeting, anchoring, and transporting the P22 DNA across the cytoplasmic membrane of *Salmonella Typhimurium* (Perez, et. al. unpublished). Since both gp16 and sieA are closely associated with the cytoplasmic membrane, I hypothesized that sieA interacts with gp16 to prevent superinfecting DNA from infecting the P22 lysogen. Methods: A triple ligation of gp16, GST-tag adaptor, and sieA was performed in the pET46 vector (Novagen). To confirm the association between sieA and gp16, the TAG-tag of sieA was replaced with a Nus-tag. Protein-protein interaction between gp16 and sieA was studied using pull down and co-immunoprecipitation assays. Since there is a possibility that sieA interacts with the superinfecting P22 DNA, gel retardation assays were performed. Results: 6XHis-gp16 co-eluted with GST-sieA and co-immunoprecipitated with Nus-sieA. Nus-sieA also co-eluted with 6XHis-gp16 in the reverse pull down assay. The protein-protein interaction between 6XHis-gp16 and GST-sieA or 6XHis-gp16 and Nus-sieA, provide convincing evidence that gp16 associates with sieA. The gel retardation assays showed that sieA does not bind with DNA. Conclusion: The P22 sieA protein forms a complex with gp16. Since sieA does not associate with any DNA, the sieA protein excludes superinfecting DNA by directly associating and modifying the function of gp16.

Acknowledgement: Funding provided by NIH/NIGMS SDSU MARC Program 5T34GM08303.

### #12 8:45-10:00 am

**Designing a Protein Based Inhibitor of Aβ Amyloid Fibrils**

Aditi Apte, Biology  
John Love, Chemistry

Aberrant protein aggregation has been identified as the molecular basis for several neurodegenerative diseases such as Alzheimer’s and Parkinson’s disease. Much attention has been focused on the development of small molecules that can interact with these proteins and prevent them from aggregating and forming...
fibers. Our approach entails the use of protein design methods to engineer a small protein-based inhibitor of the Aβ fibrils known to form the amyloid plaques associated with Alzheimer’s disease. The design incorporates both computational and experimental screening methods. In the first step the structure of a small test protein (protein G) will be computationally docked to the NMR derived structures determined for the Aβ peptide. Upon obtaining an optimal intermolecular orientation for the Aβ peptide/protein G complex, computational mutagenesis will be performed on the protein G structure at specific interfacial positions. To enhance the overall process positions at the border of the interface will be chosen for randomization during gene synthesis of the designed protein G mutant variant. The Aβ peptide is a well characterized peptide that forms amyloid fibrils under suitable conditions. We hypothesize that the interaction of Aβ peptide with a designed protein G variant may stabilize the native α-helical state of the peptide and thus prevent it from self-associating into amyloid fibrils that consist predominately of β-sheets. In addition to the designed target interactions we are also working to develop an expression system that will produce relatively high yields of Aβ peptide. The peptide is expressed as a fusion protein with ubiquitin, work is underway to obtain pure Aβ peptide from this fusion construct.

#13 8:45-10:00 am

**Exploration of the Natural Product Sansalvamide A as a Small Peptide Inhibitor of Hsp90 to Target Various Cancers**

Robert Vasko, Cell and Molecular Biology
Shelli McAlpine, Chemistry

The use of anticancer therapeutics that target specific oncogenic proteins are often compromised by the multitude of genetic variation that exist within cancers, which allows the rapid evolution of resistance against specific drugs. Heat Shock Protein 90 is a chaperone up regulated in many cancers that is responsible for rapid proliferation. Furthermore, Hsp90 is responsible for maintaining the stability of various oncogenic proteins of cancer, thereby allowing mutations that would normally cause apoptosis to go unnoticed. Thus Hsp90 is a promising molecular target and is unlike other specific cancer targets in that it’s inhibition will lead to a decrease in tumor polymorphic stability, which will lead to the natural decline in tumorogenesis via apoptosis. My goal is to test the cytotoxicity, mechanism of action, and apoptotic death inducing potential of various Sansalvamide A (San A) natural product derivatives in three types of cancer cell lines. I will be using HCT116 colon cancer cells, as well as BxPc-3 and PL45 pancreatic cancer cells. The fact that San A derivatives show preliminary results for inhibiting Hsp90 in cancer cells makes it a promising chemotherapeutic that can be used to treat various cancers.

#14 8:45-10:00 am

**Time-lapse Microscopy Identifies a Mechanical Rotation during Ascidian Embryo Development**

Korie Faber, Biology
Robert Zeller, Biology

In Ciona intestinalis the expression of certain genes shows left/right asymmetry, as has also been observed in vertebrates. In vertebrates, the beating of nodal cilia are critical for the establishment of this pattern of asymmetric gene expression, however it is unclear how asymmetric expression in Ciona is regulated. We hypothesize that the function of nodal cilia are conserved between ascidians and vertebrates and this mechanism establishes left/right asymmetrical gene expression. Recent observations from other laboratories have shown that when the ascidian embryo is grown without the chorion, a common procedure when studying embryonic development, asymmetrical gene expression is disrupted. Using time-lapse microscopy, we observed that when the chorion was left intact, embryos made two complete rotations between six and eight hours post-fertilization. When the chorions were removed, embryos failed to rotate. We believe that this embryonic rotation is critical for establishing left/right asymmetric gene expression in the embryo. We are currently using in situ hybridization to examine the expression of the asymmetrically expressed genes Pitx, Lefty and Nodal, in embryos grown with and without chorions.

#15 8:45-10:00 am

**Node and Cilia Genes Associated with Left/Right Asymmetry are Expressed in the Chordate Ciona intestinalis**

Patrick Perrigue, Biology
Robert Zeller, Biology

Believed to be exclusive to vertebrates, the node, or Organizer, contains cilia whose beating pattern during embryonic development is a major determinant of left/right asymmetry. In vertebrates, nodal cilia express a specific gene for left/right dynein, and cilia in general express a number of genes including the BBS genes and PKD2. Mutations or deletions of nodal cilia genes have been implicated in human medical conditions including Bardet-Biedl syndrome, polycystic kidney disease, situs inversus, pancreatic islet dysplasia, retinopathy and certain forms of deafness. Our analysis of genomic sequence has identified putative nodal cilia genes in the urochordate, Ciona intestinalis. To detect the temporal and spatial expression of these genes, in situ hybridizations were carried out using digoxigenin-UTP labeled anti-sense RNA probes for two candidate left/right dyneins, and for PKD2. Expression of these genes in Ciona intestinalis occurs prior to the appearance of asymmetrical gene expression as documented by other laboratories. In addition, the transcripts of BBS genes are
detected in the RNA of unfertilized ascidian eggs. The expression of putative nodal cilia gene homologues provides insight into the evolution of the vertebrate node.

#16 8:45-10:00 am

**Using Acetylated Tubulin Antibodies to Visualize Cilia during Ciona Intestinalis Embryonic Development**

Yun Ju Chiu, Biology
Robert Zeller, Biology

Ascidian eggs contain maternally derived test cells that initially line the inside of the chorion, an acellular layer that protects the embryos during development. The role of the test cells on embryonic development remain poorly understood. By utilizing an antibody specific to acetylated tubulin and immunofluorescence microscopy, cilia were visualized between six and eight hours post-fertilization. Cilia were observed on the maternally derived test cells, but not on the actual embryo. Our lab has previously shown that during this period of embryogenesis, a characteristic rotation of the embryo occurs. We hypothesize that the active beating of test cell cilia cause the embryo to rotate during embryogenesis. This rotation appears to be critical for establishing patterns of asymmetrical gene expression in Ciona intestinalis in a manner similar to that found in vertebrates.

#17 8:45-10:00 am

**C-terminal Deletions of IKK beta Lose Specificity for IkappaB Substrate**

Jacob Shaul, Biology
Tom Huxford, Chemistry

In higher eukaryotes the transcription of a large group of genes is controlled by the transcription factor NF-\(\beta\) 954;B. NF-\(\beta\) 954;B activates genes in response to pro-inflammatory signals. In the absence of these signals NF-\(\beta\) 954;B is held in an inactive state in the cytoplasm by binding to the inhibitory protein I\(\beta\) 954;B. Upon induction, I\(\beta\) 954;B is phosphorylated by the IKK complex. After phosphorylation, I\(\beta\) 954;B is degraded by the 26S proteosome and NF\(\beta\) 954;B translocates to the nucleus to regulate transcription of target genes. The objective of our study is to characterize the phosphorylation of I\(\beta\) 954;B substrates by IKK beta. Human IKK\(\beta\) 946; and Drosophila IKK\(\beta\) 946; were expressed in Sf9 cells with N-terminal His tags and purified. The following substrates were expressed in E. coli either as GST fusions or N-terminal His fusions: Human I\(\beta\) 954;B;\(\beta\) 945; Human I\(\beta\) 954;B;\(\beta\) 945; with serines 32 and 36 mutated to alanines, and Drosophila Relish. The kinase activity of the purified kinases was assayed by measuring the amount of 32P transferred to substrates in vitro. Full length Human IKK\(\beta\) 946; was shown to phosphorylate Human I\(\beta\) 954;B;\(\beta\) 945; specifically at serines 32 and 36. Truncation of IKK\(\beta\) 946; at amino acids 394, 409, and 420 resulted in kinase activity that is not specific to serines 32 and 36 of I\(\beta\) 954;B;\(\beta\) 945;. Drosophila IKK\(\beta\) 946; is capable of phosphorylating Human I\(\beta\) 954;B;\(\beta\) 945;, but is not specific to serines 32 and 36. These results indicate that while the kinase domain of IKK beta is not sufficient for specific phosphorylation of Ik8 alpha.

#18 8:45-10:00 am

**Contaminant Levels and Potential Health Effects in Chelonia Mydas in San Diego Bay, CA**

Lisa Komoroske, Biology
Rebecca Lewison, Biology

Many heavy metals, polychlorinated biphenyls (PCB’s), polycyclic aromatic hydrocarbons (PAH’s), and chlordanes have been found to exceed the “probable effects levels” in the San Diego Bay (Fairey 1998). The bay is home to a population of green turtles (Chelonia mydas) that are known to forage and reside most of the year in these polluted waters. This study investigates the levels and possible health effects of these contaminants in C. mydas and their food web. The recent development and validation of non-invasive blood and scute sampling was used to measure contaminant loads in the live San Diego Bay population without relying on tissues from opportunistnic strandings. Samples of water, sediment, Zostera marina, Gracilaria spp., Ulva spp. and various invertebrate epifauna were also analyzed to investigate bioaccumulation patterns in the food web of C. mydas at eight sites throughout the San Diego Bay. Samples were analyzed for (15) heavy metals and organic contaminants (PCB’s, PAH’s, and chlordanes) via ICP-MS and gas chromatography, respectively. Visual health assessments and blood biochemical assays were conducted from all individuals sampled. Results of relationships between toxin levels, growth rates and fitness offer insight into what individual and synergistic effects these contaminants have on C. mydas and other organisms in the eelgrass ecosystem.

Session A-1

**Poster: Health and Health Behavioral Sciences**
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

#19 10:00-11:15 am

**The Effects of Timing, Type, and Severity of Maltreatment on Somatic Complaints in Childhood**

Karin Hemric, Psychology
Alan Litrownik, Psychology

There is limited research on the effects of multiple characteristics
of maltreatment on physical outcomes in childhood. Past research has demonstrated a relationship between early adverse childhood experiences and health outcomes in adulthood, but this research is limited by its retrospective design and adult samples. The current study investigates the effects of timing, type, and severity of child maltreatment on the somatic complaints of 10 year olds. The final analyses were based on a sample of 210 participants drawn from the San Diego site of the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) consortium. Data were collected during separate interviews with the caregiver and child at age 4 and at age 10. An early period of maltreatment (birth to age 4) and a later period (age 4 to age 10) were assessed for five types of maltreatment: physical abuse, sexual abuse, failure to provide, lack of supervision, and emotional abuse. Based on a review of CPS records, the severity of each type of maltreatment during these time periods were rated using a 5-point Likert scale. Children and caregivers provided data on headaches and stomachaches at age 10 using the CHQ-C for children, CHQ-P for caregivers, and the CBCL Preliminary analyses indicated that the caregiver measures of child somatic complaints were correlated. At least a third of the children experienced some form of maltreatment, primarily during the early period, and reported stomachaches or headaches at age 10. A hierarchical regression analysis will be performed, while controlling for gender, ethnicity, and internalizing problems at age 4 (CBCL), in order to test the effects of the maltreatment characteristics on childhood somatic complaints. Separate hierarchical regression models will be tested for complaints of headaches and stomachaches. Findings may provide critical information regarding the link between maltreatment and somatization and the importance of multiple maltreatment characteristics.

#20 10:00-11:15 am

**EAT Subscale Scores as Predictors of BMI for Male and Female SDSU Students**

Stephanie Miller, Psychology

Eating disorders are remarkably common in college settings (usually around 20% using common screening tools). Students suffering from these diseases often do not get help and are in denial when confronted about their disorder. To help provide better services for students with eating disorders, this study aimed to determine the size of the population at risk. Our sample is composed of San Diego State University students seeking help at Student Health Services (SHS) at SDSU between November 5th and December 7th 2007. Surveys contained questions about personal background, an eating disorder screening tool (the Eating Attitudes Test), and available treatment for eating disorders. The Eating Attitudes Test (EAT) uses a cut-off score to determine those with likely eating disorders, and contains three subscales; dieting, oral control, and bulimia. Data were collected from 69 men and 345 women. Only one male (1.4%) and 38 female students (11%) were likely to have an eating disorder (9.4% overall). Of these students, only two stated that they pursued some form of treatment. Based on the BMI<18.5, only one male (1.5%) and 8 female students were underweight (2.4%). These results imply that between 744 and 2900 students at SDSU are likely to have an eating disorder. The oral control subscale was correlated with BMI (-.252, p < .0005), indicating that student with stronger oral control tended to have lower BMIs. There was no significant correlation between BMI and overall score on the EAT ( - .03, p = .555). This insignificant correlation may have many implications. Practically, it means that a combination of EAT score and BMI provide more screening information than either method alone.

#21 10:00-11:15 am

**Disease Adaptation and Health Outcomes in HIV-positive Hispanics**

Camacho Lizeth, Psychology
Linda C. Gallo, Psychology

A growing body of literature supports the association between adaptation to disease and health outcomes in HIV/AIDS patients. We examined adaptation to disease and health outcomes in 160 Hispanic HIV+ patients (n=121 Male; Mean age = 39.46 years), recruited from a community clinic near the San Diego/Tijuana border. Participants completed measures of disease adaptation, quality of life, transmission risk behaviors, and disclosure of HIV status to partners. Disease status (CD4 cell count) was measured in 144 participants. Hierarchical regression analyses showed that after controlling for sex, age and sexual orientation, positive adaptation related to improved mental (R20= .18, β=.45, p< .001) and physical (R20= .12, β=.36, p<.001) functioning, fewer difficulties with daily activities (R20= .04, β=.20, p<.05), and a trend toward higher CD4 counts (R20= .03, β=.16, p<.10). Poorer adaptation related to worse mental (R20= .27, β=.57, p< .001) and physical (R20= .13, β=.40, p<.001) functioning, more interference with daily activities (R20= .08, β=.30, p<.01), and lower CD4 counts, (R20= .04, β=.20, p<.05). Neither positive nor negative adaptation related to overall participation in risk behaviors. However, a logistic regression analysis showed that higher negative adaptation predicted a lower likelihood of disclosure of HIV status to partners ( OR=1.8, p<.01). These findings demonstrate the importance of successfully adapting to HIV/AIDS diagnosis, to facilitate better health and reduced transmission risk (through disclosure of status to partners). Future interventions should include skills and guidance for patients to promote positive adaptation and to target individuals identified as adapting negatively. Additional research concerning factors that contribute to disease adaptation in Hispanics is especially important, since this population is disproportionately burdened by HIV/AIDS.
#22 10:00-11:15 am  
**Cost-effectiveness of Different Recruitment Strategies for Secondhand Smoke Research Study**  
Laura Sirikulvadhana, Public Health  
Marilyn Johnson-Kozlow, Graduate School of Public Health  

**INTRODUCTION:** Recruitment of participants for research studies are often time consuming and costly. The poster describes and examines the cost of a variety of recruitment strategies used in the community and online to encourage individuals to contact and participate in the secondhand smoke research study.  

**METHODS:** The recruitment information was recorded and evaluated according to the location of recruitment (where the potential participant received the information), associated costs to recruitment, whether the potential participants were eligible for the study, if they participated in the study and length of time of recruitment.  

**RESULTS:** With 97 locations posted (online, mailings, postings), 183 people have responded from our recruitment efforts with 30 eligible and 23 enrolled in the study. Costs will be evaluated by the resource usage. The cost effectiveness will be determined by costs per potential participant contacting the study and those who enrolled in the study.  

**CONCLUSIONS:** Once the study is completed, we hope to conclude the different cost-effective recruitment strategies that could be used by other studies.

#23 10:00-11:15 am  
**A Critical Analysis of Medication Adherence Among Heterosexual HIV-Positive Hispanics**  
Iris Rayngay, Public Health  
Gregory Talavera, Graduate School of Public Health  

The purpose of this proposal is to investigate the determinants of medication adherence among Latinos in a group of HIV-positive patients receiving HIV/AIDS services at a San Diego Clinic. In San Diego County, most of the people recently diagnosed or living with HIV/AIDS resides in the Central and South Bay areas of the County. With the current increasing proportions of HIV/AIDS cases, escalating HIV/AIDS cases among Hispanics/Latinos and disproportionate case results, it is apparent there is an urgent need to focus on the Hispanic population.  

It is hypothesized that quality of life and levels of disease severity are key determinants for Latinos to adhere to their medication. To explore the degree to which these factors play a role in medication adherence, a statistical model of a mediator effect will be used to examine the association between disease severity, medication adherence and measures such as social support and quality of life. The outcomes of this study will provide information on specific determinants of medication adherence, and thus will highlight detailed predictors which should receive special attention in both future research endeavors and in HIV program development for Hispanic HIV-Positive patients.

#24 10:00-11:15 am  
**Feasibility of Conducting a Study on Exposure to Environmental Tobacco Smoke Using a Handheld Personal Digital Assistant (PDA) to Measure Health Behavior**  
Kara Ballenger-Browning, Public Health  
Marilyn Johnson-Kozlow, Graduate School of Public Health  

**INTRODUCTION:** Exposure to environmental tobacco smoke (ETS) has typically been measured using retrospective self-reports because of convenience and cost-effectiveness. However, this method of collecting data is subject to recall bias. The use of personal digital assistants (PDAs) to collect data in real-time may minimize discrepancies caused by a lapse in time between exposure and recall. We hypothesize that using PDAs to measure indoor exposure to ETS is a feasible method of data collection.  

**METHODS:** 23 (46%) non-smoking female participants have been enrolled to date based on their ETS exposure. PDA alarms were scheduled using randomly selected times roughly two hours apart from 6 AM to midnight. Three alarms prompted participants to take a long survey, while six alarms prompted short surveys each day for the 7 days of the study. Data reported at screening will be compared to that recorded on the PDA to determine if ETS exposure changed due to measurement reactivity. Fidelity to the pre-determined alarm schedule and the length of time needed to complete short and long surveys will also be analyzed.  

**RESULTS:** Analysis of the data will determine the feasibility of conducting a PDA-based study of health behavior. Differences in scheduled vs. self-initiated surveys of ETS exposure will be determined. Problems that participants report in using the PDA will be categorized and costs associated with loss of study property will be cataloged.  

**CONCLUSIONS:** We hope to conclude that using a PDA to record real-time data is a feasible method of measuring exposure to environmental tobacco smoke.
Session A-1  
Poster: Humanities, Psychology, and Social Sciences  
Friday, February 29th, 2008, 8:45 am – 12:30 pm  
Location: Montezuma Hall South  

#25  10:00-11:15 am  
**Using Feeding Traces and the Presence of Canarium Madagascariensis in Determining the Distribution of Daubentonia Madagascariensis in Ranomafana National Park, Madagascar**  
Timothy Sefczek, Anthropology  
Erin Riley, Anthropology  

The study of aye-ayes (Daubentonia madagascariensis) occurs mostly in zoos or on the island of Nosy Mangabe, a introduced population and it is uncertain if conclusions gathered from these studies can be extrapolated to wild populations. In this study, at Ranomafana National Park, I will use feeding traces to determine the population density of aye-ayes and their connection with Canarium madagascariensis, a tree species that studies suggest is linked to aye-aye distribution (Iwano & Iwakawa, 1988). Comparisons of high and low elevation forests and primary and secondary forests were conducted by walking trail systems and recording the presence of feeding traces in dead wood and the number of Canarium trees. There was no difference in number of traces between high and low elevation forests but there was a preference for primary over secondary forests. In comparing primary and secondary forests, there were higher densities of dead wood, but an equal density of new traces in the primary and secondary forest and a lower percentage of new traces in dead wood within the primary forest. Canarium density was highest in the primary forest, rendering further support that aye-aye densities are closely related to Canarium populations.

#26  10:00-11:15 am  
**Psychometric Study of Descriptive Norms Regarding Dating Violence**  
Stephanie Skinner, Psychology  
Emilio Ulloa, Psychology  

Dating violence among adolescents is a serious problem that has received increased attention in recent decades. Each year, 1 in 4 adolescents experiences psychological, physical or sexual abuse (e.g. Foshee, Linder, Eauman, et al., 1996; Avery-Leaf, Cascarci, O’Leary, Cano, 1997). Attitudes regarding dating violence have been investigated with measures of descriptive norms, a person’s perception of the prevalence of behavior in their social group, and injunctive norms, a person’s perception of what should be done (e.g. Cialdini, Reno, & Kallgren, 1990). Past research studies have found that generally both descriptive and injunctive norms are important predictors of behavior (Buunk, & Bakker, 1995; Rimal, & Real, 2003). Thus, it is important to develop psychometrically sound measures with well-developed items. One of the limitations associated with exploring descriptive norms are the small number of items used to assess the construct. This limits the reliability and validity of these studies. The purpose of the following study is to develop a comprehensive scale of descriptive norms in the context of dating violence. Participants were recruited from introductory psychology courses from a large university and included 231 (Age = M 18.95) unmarried students who reported having at least one dating experience in the last year. Student’s participation in the study was voluntary and a partial fulfillment of an introductory psychology course requirement. The scale was internally validated by performing a factor and reliability analysis and was externally validated by comparing it with scales that measure similar or related constructs. The correlations between the descriptive norms scale and other scales were correlated positively with the measured construct. Results indicated strong internal and external validity. The current study’s construction of a valid measure will enhance the study of dating violence which in turn can aid in creating effective prevention programs that will battle dating violence.

#27  10:00-11:15 am  
**Is Barack Obama Less American than Hillary Clinton?**  
Kyle Jones, Psychology  
Thierry Devos, Psychology  

Research has demonstrated a robust propensity to more readily ascribe the American identity to whites rather than to ethnic minorities (Devos & Banaji, 2005; Devos & Ma, in press). Gender has never been studied in conjunction with ethnicity to determine if the American=White effect is still present when a white woman is compared to a black man. The goal of the present research was to determine the role of gender and ethnicity on the construal of two candidates in the upcoming election. We examined the extent to which Barack Obama was explicitly and implicitly viewed as being more or less American than Hillary Clinton. Participants explicitly rated the extent to which these two individuals were perceived as American and completed Implicit Association Tests assessing the strength of associations between these targets and the attribute “American” (relative to “foreign”). Targets were categorized based on ethnicity (Black vs. White), gender (Man vs. Woman), or personal identity (Obama vs. Clinton). Implicitly, Clinton was always considered more American than Obama, but the effect was more pronounced when the targets were categorized based on ethnicity than based on gender or personal identity. Explicitly, a woman was not perceived as being
more American than a man, but the American identity was more readily ascribed to both a white person and to Hillary Clinton than to a black person and to Barack Obama. The strongest explicit distinctions emerged when emphasis was placed on personal identity, suggesting that participants were more inclined to distinguish between the candidates themselves rather than between groups based on ethnicity or gender. The fact that the ascription of the American identity varied depending on the frame through which candidates were viewed presents intriguing implications for the role that the media and political campaigns may have on the outcome of the 2008 presidential elections.

#28 10:00-11:15 am

Social Dating Goals

Ebonie Solin, Child and Family Development

This research examined 2 age-typical goals that adolescents may pursue in social dating (intimacy goals related to open communication and mutual dependence and identity goals related to self-reliance and self-exploration) and the implications of these different goal sets for responsiveness to educational and daily life situations. Education about safer sexual activity that emphasized interpersonal communication skills was more effective in increasing intentions regarding safer sex for adolescents with predominant intimacy goals in dating, whereas education that focused on technical skills was more effective for those with predominant identity goals. Adolescents were also less likely to engage in risky sexual behavior when they were in dating situations that encouraged goal-relevant activities for ensuring safer sex. Discussion focuses on the dynamics within the broader bidirectional fit between personal goals and situational affordances.

#29 10:00-11:15 am

Does Familiarity Breed Optimism? Effects of Task Familiarity on Performance Predictions

Welton Wang, Psychology
David Armor, Psychology

Two experiments tested the effects of task familiarity on performance predictions. It was hypothesized that familiar tasks would elicit more optimistic performance expectations, even when other aspects of the task (such as past experience) were held constant. In both experiments, participants were asked to make predictions about how they would perform on a novel game (an unusual variant of a bean bag toss). The description of this task was experimentally manipulated to be either familiar (similar to other games the participant may have played before) or unfamiliar (unlike other games the participant may have played before). In Experiment 1, participants were provided with an average score (taken from prediction scores from a pre-test) as a base rate for performance on the task. Results revealed that participants assigned to the familiar description condition predicted that they would do better than this average score, while participants assigned to the unfamiliar description condition predicted that they would do worse than this average score. This difference in predictions was statistically significant, \( t(78) = 2.63, p = .01 \). In Experiment 2, participants were again assigned to a familiar or unfamiliar description of the game, and were additionally assigned to receive one of three different base rate scores (either lower than, higher than, or consistent with pretest expectations). Participants assigned to the familiar description conditions were again more optimistic than participants assigned to the unfamiliar description conditions, \( F(1, 119) = 36.0, p < .001 \), and this effect was not moderated by the base rate manipulation.

#30 10:00-11:15 am

Marital Satisfaction among Indian Immigrants: Arranged and Non-arranged Marriages

Dara McIntyre, Psychology
Richard Graf, Psychology

Previous research has emphasized the role of marriage as a primary socialization tool in society (Rosen-Grandon, Myers, & Hattie, 2004). In the United States, over 90 percent of people will choose to marry at some point in their lives (Rosen-Grandon, et al., 2004). Marriage has been shown to have a positive effect on the overall well being of the married partners (Hawkins, & Booth, 2005; Pihet, Bodenmann, Widmer, & Shantinath, 2007). Thus, research on marital satisfaction is both relevant and far reaching. This study examined marital satisfaction in arranged and choice marriages. A sample of 97 East Indian immigrants was surveyed in the greater San Diego area. Marital satisfaction was measured as a function of type of marriage (arranged, choice), acculturation (low, high), and gender. The principal hypothesis was that in arranged marriages individuals with low acculturation would experience greater marital satisfaction than those with high acculturation. In marriages of choice, partners with high acculturation would be more satisfied than would those with low acculturation. The results supported both predictions, \( p < .093 \). The findings provide further understanding of marital satisfaction among different marital models, and provide insight for counselors and others who work with married immigrants.

#31 10:00-11:15 am

Parental Emotional Availability as a Predictor of College Women’s Self-esteem

Elizabeth De Armas, Psychology
Elizabeth Cordero, Imperial Valley Campus

The purpose of this study was to examine the relationships between maternal and paternal emotional availability and self-esteem in college women. Maternal and paternal emotional
Emilio Ulloa, Psychology  
Jessica Belfy, Psychology  
American Teens  
Relationship Violence in Mexican Versus Mexican-American Students (ages 14-17) revealed a significant gender by location interaction for peer norms for TRV perpetration. The study utilized a 2 (gender) by 2 (culture) research design. Results from 197 Mexican and 97 Mexican-American students (ages 14-17) revealed a significant gender by location interaction for peer norms for TRV perpetration (p < .01). Post-hoc t-tests revealed that Mexican-American girls reported higher rates of peer perpetration than Mexican girls (p < .05), Mexican-American girls reported higher rates of peer perpetration than Mexican-American boys (p < .05), and there were significant main effects for gender and culture. Boys had higher acceptance of violence scores than girls and Mexican American adolescents had higher acceptance of violence scores than Mexican adolescents. Implications for interventions and future research are discussed.

#32 10:00-11:15 am  
**Peer and Personal Norms in Relation to Teen Relationship Violence in Mexican Versus Mexican-American Teens**  
Jessica Belfy, Psychology  
Emilio Ulloa, Psychology  
Teen dating violence is a prevalent problem with 40% of adolescents reporting that they have used some form of violence against their dating partner (Coker, Smith, McKeown, & King, 2001), including physical assault, sexual assault, threats and harassment, stalking, and psychological coercion and intimidation (Hickman, Jaycox, & Aronoff, 2004). Previous research has shown that girls are more typically psychologically and physically abusive towards an intimate partner. Boys tend to be more sexually abusive (Foshee, 1996, Poitras & Lavoie, 1995; Wolfe, Wekerle, Reitzel-Jaffe, & Lefebvre, 1998). Research has revealed that personal norms, which includes acceptance of violence beliefs are an important factors contributing to the perpetration of dating violence (Malik, Sorenson, & Aneshensel, 1997). Furthermore, studies have reported that peer norms predict teen dating violence (Arriaga & Foshee 2004). Few studies have examined whether correlates of TRV differ for females and males. In addition, the majority of research on TRV is based on white, middle class Americans, and few studies exist on Mexican or Mexican-American adolescents. The current study examines gender differences in acceptance of violence beliefs and peer norms for TRV among Mexican versus Mexican-American adolescents. The study utilized a 2 (gender) by 2 (culture) research design. Results from 197 Mexican and 97 Mexican-American students (ages 14-17) revealed a significant gender by location interaction for peer norms for TRV perpetration (p < .01). Post-hoc t-tests revealed that Mexican-American girls reported higher rates of peer perpetration than Mexican girls (p < .05), Mexican-American girls reported higher rates of peer perpetration than Mexican-American boys (p < .05), and there were significant main effects for gender and culture. Boys had higher acceptance of violence scores than girls and Mexican American adolescents had higher acceptance of violence scores than Mexican adolescents. Implications for interventions and future research are discussed.

#33 10:00-11:15 am  
**The Growth and Levels of Prosocial Normative Beliefs among Middle School Children: A Longitudinal Study**  
Tiago Antonio, Psychology  
David Henry  
Prosocial problem-solving refers to the use of nonviolent strategies for resolving conflicts. There has been little research attention individual and school norms for prosocial problem-solving, despite the emphasis on interpersonal negotiation strategies in violence prevention programs and evidence that peer injunctive norms predict aggressive behavior. This study examined the growth and levels of individual and school norms for prosocial problem-solving during the middle school years. The sample consisted of 1322 middle school children from four metropolitan areas, who were in the control condition of the Multisite Violence Prevention Project. Linear mixed-effects regression models were fit to test whether, as we predicted, a) specific and general norms about prosocial problem-solving would decline with age, b) females would evidence higher levels and/or steeper slopes of specific and general norms about prosocial problem-solving than males, and whether c) African-American youth would have higher levels and/or steeper slopes on specific and general norms about prosocial problem-solving than Hispanic or Caucasian youth. No specific predictions were made regarding gender and ethnic variation in growth of perceived school norms for prosocial problem-solving. The results revealed that levels of specific norms for prosocial problem-solving increased during the middle school years, and were higher among Caucasian and African-American youth than among Hispanic youth. Additionally, growth of specific norms was significant and positive among girls but stable among boys. Levels of general norms for prosocial problem-solving decreased during the middle school years regardless of ethnicity or gender, and were lower among boys compared to girls. Levels of school norms for prosocial problem-solving decreased during the middle school years regardless of ethnicity or gender. The results have implications for preventive curriculum. That is, violence prevention curricula should target particularly boys under the age of 15 by encouraging the development of strong norms for prosocial problem-solving.
#34 10:00-11:15 am

Perceived Pressure Among Division-I Athletes

Jaclyn Shapin, Psychology
Richard Graf, Psychology

This study tested the hypothesis that college athletes perceive a greater amount of performance pressure from their coaches than the athletes perceive. One-hundred-fifty division one female athletes and six coaches from San Diego State University were asked to fill out a questionnaire measuring how much performance pressure the athletes experienced. The two-factor between subjects analysis showed that, contrary to the prediction, athletes perceived significantly less pressure than the coaches assumed to exist. It was also found that athletes in team sports felt more pressure than athletes in individual sports. Implications of the findings include increased communication between athletes and coaches in an effort to identify optimal levels of pressure leading to enhanced performance.

#35 10:00-11:15 am

Injunctive Norms among Delinquent Male Youths: the Relationship between Dating Violence and Positive Conflict Resolution

Robert Jordan, Psychology
Audrey Hokoda, Child and Family Development

Teen relationship violence is a prevalent problem among delinquent male youths (Brendgen, Vitaro, Tremblay, & Wanner, 2002). Despite evidence that injunctive norms may be a predictor of aggressive behaviors (Gray & Foshee, 1997), studies on specific dating violence norms are rare. Additionally, given that studies on protective factors (e.g., positive conflict resolution) in relation to teen relationship violence are scarce, and that verbal-emotional abuse is a strong predictor of physical abuse, it is important to establish the relationship among specific injunctive norms for physical abuse, verbal abuse and positive conflict resolution. Therefore, in the present study, 25 incarcerated male adolescents, aged 16 to 18, completed a survey assessing their specific injunctive norms for dating violence and conflict resolution. A correlational study was designed to test the predictions that norms for physical abuse and verbal-emotional abuse would be correlated with each other. Additionally, we predicted that norms for positive conflict resolution would be negatively associated with norms for physical abuse and verbal-emotional abuse. The results confirmed our first hypothesis; norms for physical abuse were positively associated with norms for verbal-emotional abuse, r (25) = .627, p < .001. The results also revealed that norms for positive conflict resolution were negatively associated with norms for physical abuse, r (25) = -.560, p < .05, and, surprisingly, not associated with norms for verbal emotional abuse, r (25) = -.208, ns. The implications of these results show that optimum curriculum may benefit by focusing on developing stronger norms for positive conflict resolution as a way to lower dating violence among youths.

#36 10:00-11:15 am

Implications of the “Perpetual Foreigner” Stereotype on Ethnic Minorities’ Self-concept

Laura Smalarz, Psychology
Thierry Devos, Psychology

Although Asian and Latino Americans may think of themselves as Americans, they are often innocuously denied the American identity and treated as if they were perpetual foreigners (Cheryan & Monin, 2005; Devos & Banaji, 2005). The aim of the present research was to examine the potential implications of the “perpetual foreigner” stereotype on the self-concept of Asian and Latino American college students. We hypothesized that the extent to which members of an ethnic minority are aware of being psychologically denied the American identity accounts for subjective reports of conflicts between ethnic and national identifications and a weakened sense of belonging to the mainstream American culture. Eight hundred and thirty-six college students (231 Asian Americans, 211 Latino Americans, and 394 Caucasian Americans) completed various measures assessing their awareness of being denied the American identity and their subjective representation of the interrelationships between their ethnic and national identities. Participants also completed the Scale of Ethnic Experience (Malcarne, Chavira, Fernandez, & Liu, 2006), the Multigroup Ethnic Identity Measure (Phinney, 1992), and a measure of national attachment (Sidanius, Feshbach, Levin, & Pratto, 1997). All scales showed good internal consistency. Asian and Latino participants reported being denied the American identity by others to a greater extent than Caucasian participants. In addition, they were more likely to experience conflict or tension between their ethnic and national identities and to feel marginalized from mainstream American society. Finally, ethnic differences in thoughts of conflict and rejection were mediated by awareness of being stereotyped as a “perpetual foreigner”. These correlational findings are consistent with the idea that prevalent assumptions about what it means to be American may undermine the ability of members of ethnic minorities to think of themselves as American. Furthermore, this effect could potentially produce negative consequences on the well-being and mental health of these individuals.

#37 10:00-11:15 am

“I Know You Are, But What Am I?” Implicit Political Stereotypes

Christopher Anderson, Psychology
Jeff Bryson, Psychology
Do we think of Republicans as decisive, or as rigid? Are Democrats flexible, or are they indecisive? We compared implicit and explicit associations by Republican, Democratic, and nonaffiliated potential voters to define the extent to which perceptions of candidates were determined by evaluative and/or descriptive qualities. Explicit (self-report) judgments were primarily determined by descriptive qualities: Republicans were more likely to be seen as decisive, but also as rigid, and Democrats as flexible, but also indecisive. However, automatic associations, measured using an Implicit Association Test, manifested strong evaluative in-group biases: registered members of each party saw their own party candidates as both decisive and flexible, and candidates of the other party as both rigid and indecisive. Nonaffiliated voters responded more like Democrats, associating Democratic candidates with the more positive qualities.

### #38 10:00-11:15 am

**Gestalt Theory: A Piece Left Out of the Whole**

Christyna Prounh, Psychology  
W. Hillix

The story of Gestalt psychology’s origin has remained unchanged since Newman’s 1944 description of a train ride taken by Max Wertheimer through the Rhineland. Wertheimer’s epiphany on the train has been the core story of the founding of Gestalt psychology. However, there are some discrepancies between the details of the accounts told throughout the years. The current paper brings to light an additional piece of information that suggests a different account of Gestalt psychology’s history. Further, it presents some often neglected information about a key influence, von Ehrenfels, and greatly strengthens the links between the co-founders (Koffka and Köhler) and Wertheimer, to clear up the account of Gestalt psychology’s origin.

### #39 10:00-11:15 am

**Awareness and Internatilization of Sociocultural Attitudes and College Women’s Self-esteem**

Elizabeth Scarpetta, Psychology  
Elizabeth Cordero, Imperial Valley Campus

The purpose of this study was to investigate how awareness and internalization of sociocultural attitudes about appearance predict self-esteem in college women. Previous studies show that awareness and internalization of sociocultural attitudes about appearance lead to body dissatisfaction in college women; body dissatisfaction, in turn, is a predictor of eating pathology in this population. Another predictor of eating pathology in college women is self-esteem. Given extant research that awareness and internalization of sociocultural attitudes negatively affect college women’s evaluation of their bodies, it is hypothesized that these variables would predict how college women evaluate themselves (i.e. self-esteem). This project analyzed a subset of data of a study of ethnic disparities in the effects of the parent-daughter relationship on the eating and body image of college women. Two hundred and seventy-four college women served as participants and completed the SATAQ and the RS-E. Data were analyzed using simultaneous multiple regression. The predictive power of the model was not significant (p = .069). Awareness of sociocultural attitudes was not a significant predictor of self-esteem, (p = .313); however, internalization of sociocultural attitudes was a significant predictor of self-esteem, (p = < .050). Implications pertain to how knowledge about the relationship between internalization of sociocultural attitudes and self-esteem can inform outreach efforts that promote healthy body image and eating patterns. Limitations will be discussed.

### Session A-1

**Poster: Language and Communications**

Friday, February 29th, 2008, 8:45 am – 12:30 pm  
Location: Montezuma Hall South

### #40 11:15-12:30 pm

**Processing of Overt Anaphors in Typical and Atypical Developing Language Populations**

Bonnie Romanowsky, Speech, Language, and Hearing Sciences  
Tracy Love, Speech Language and Hearing Sciences

Children as young as four years of age with typical language development (TLD) have demonstrated the ability to process co-reference relations in a manner similar to adults, as evidenced by previous studies of real-time child language processing. Examples of these types of co-reference relations include pronouns (him) and reflexives (himself). However, the real-time processing of complex sentence constructions in children with specific language impairment (SLI) who typically exhibit grammatical deficits in areas of receptive and expressive language abilities has not been heavily researched. Two studies are presently examining the unconscious (on-line) co-reference relations involving pronouns and reflexives in TLD children and children of similar ages (5-12) with SLI, as well as the conscious (off-line) assembly of these constructions. Data collected from the on-line experiments (using a cross-modal picture priming paradigm-CMPP) reflect that children with TLD demonstrate adult-like syntactic processing patterns. In prior published reports, data collected from children with SLI as compared to their TLD peers demonstrated different patterns of processing. Current Experiments: Experiment 1: Given the following example: The alligator knows that the turtle is rubbing him/himself/the nurse with suntan oil on the sandy beach. Experimental sentences that contained a pronoun, a reflexive, or a non-co-referential noun phrase that served as a baseline condition were presented. Using the CMPP
task, re-activation patterns for the first noun phrase (alligator in the example above) were analyzed. Auditory sentences of similar constructions were presented to 22 TLD and 9 SLI children (ages 5-12 yrs). SLI children received a core language score ≤ 85 on the CELF-4, but had IQ scores within the normal range (≥ 85 on TONI-3). TLD children, similar to prior published adult patterns, primed the structurally correct antecedent of the pronoun (NP1), implying normal processing of the dependency relation. However, SLI children demonstrated a different pattern, suggesting abnormal processing of the dependency relation. Experiment 2: Using the same stimuli as above, the second NP was tested- thus testing the dependency relationship of the reflexive. To date, 17 TLD children and 3 SLI children (ages 5-12 yrs) have participated. The same criteria for language classification as in Experiment 1 applied. Preliminary analyses suggest that TLD participants demonstrate correct linking of the reflexive and the structurally correct antecedent (NP2).

**#41 11:15-12:30 pm**

**Complex Syntax of African American English-speaking Children**

Kathryn Sievers, Speech Language Pathology  
Sonja Pruitt, Speech Language and Hearing Sciences

Research suggests that children's use of complex syntax is unaffected by their use of nonmainstream dialect patterns. However, few studies have explored the effects of poverty on such measures. The purpose of this study was to detail the frequency and types of complex syntax produced by preschoolers who speak African American English (AAE) and the relationship that exists between complex syntax, socioeconomic status, nonmainstream dialect use and utterance length. Three groups of AAE speakers participated: 10 low-income 6-year-olds (LSES); 10 middle-income 6-year-olds serving as typically-developing, age-matched controls (AM); and 10 middle-income 5-year-olds serving as typically-developing, age-matched controls (LM). LSES was defined as a maternal education level of less than 12 years and presence of depressed language test scores without diagnosis of impairment. MSES was defined as a maternal education of at least two years of college and age-appropriate language test scores. Dialect status was confirmed through blind listener judgments. Data for the complex syntax analysis were generated from language samples collected during adult-child play sessions. Coding of complex syntax followed the guidelines set forth by Jackson and Roberts (2001). All of the participants produced the unique types of complex syntax with similar frequency, and group differences were not detected for the children's use of complex syntax. Correlational analyses revealed that the children's use of complex syntax was not related to their SES or use of dialect. However, the children's use of complex syntax was positively related to their mean length of utterance. This finding was consistent with previous research which shows that as utterance length increases, use of complex syntax increases. In sum, the results suggest that the effects of poverty on children's language production are not uniform. Rather, the vocabulary weaknesses that have been documented for children from low-income backgrounds do not impact their use of complex syntax. Clinical implications will be discussed.

**#42 11:15-12:30 pm**

**African American English-speaking Children's Use of Past Tense**

Stephanie Ash, Speech, Language, and Hearing Sciences  
Sonja Pruitt, Speech Language and Hearing Sciences

Within African American English (AAE), overt marking of past tense is often described as optional, and there is some evidence to suggest that rates of zero-marked forms (like rates of other vernacular patterns within AAE) increase as a speaker's socioeconomic status (SES) decreases. This study examined past tense marking of AAE-speaking children from middle- and low-income homes to further examine the variable nature of AAE. Specifically, we sought to determine if AAE-speaking children's rates and patterns of past tense marking differ as a function of SES, phonological constraints associated with AAE, and the probability of sounds co-occurring (phonotactic probability). The participants included two groups of AAE speakers: 15 six-year-olds from low-income backgrounds (LSES) and 15 six-year-olds from middle-income backgrounds who served as typically developing, age-matched controls (MSES). The LSES group had mothers who had not graduated from high school (M = 10 years) and most attended schools with standardized test scores that fell below the state average. The MSES groups had mothers who had completed at least two years of college (M = 15.60 years) and most attended schools with above-average test scores. Dialect status was determined by blind listener judgments. Data were from a past tense elicitation probe containing 14 regular (half with high probability phonology in AAE and the others with low probability) and 7 irregular items. The position-specific phonotactic probability and the biphone probability for each verb were also calculated. The results of the study suggest that the children's past tense marking was affected by the phonological characteristics of the items (low vs. high probability) but not the children's SES levels (low vs. middle). Such information is useful as researchers and clinicians work to develop assessment tools that will differentiate typically developing AAE-speaking children from those children with language disorders.
#43 11:15-12:30 pm

**DPOAEs in Women and Men after Listening to an iPod**

Jennifer Grace, Speech, Language, and Hearing Sciences  
Peter Torre, Speech Language and Hearing Sciences

The aim of this project was to determine possible distortion product otoacoustic emission (DPOAE) changes in younger men and women after listening to an iPod for 60 minutes using earphones with a comfortable volume setting. There were 16 age-matched participants (8 men, 8 women). Participants had normal middle-ear function and passed a hearing screening. DPOAEs were measured with F2 varying from 4000 to 1000 Hz and L1/L2 pairs of 55/45, 60/50, 65/55, 70/60, and 75/65 dB SPL. Growth functions were obtained before and after participants listened to 60 minutes of music at a comfortable volume, as determined by the participant. The mean comfortable listening level for men was 82.5 dB SPL (SD = 10.4 dB), and for women, 80.2 dB SPL (SD = 7.6 dB). For most frequencies and L1/L2 pairs, women had higher Pre-Music DPOAEs compared to men. At 55/45 dB SPL, women had a larger mean DPOAE decrease (i.e., Pre-Music DPOAEs minus Post-Music DPOAEs) after listening to music at most frequencies compared with men. Mean decreases in DPOAE growth functions at 1600 Hz were similar for men and women, but at 4000 Hz, women had a consistently larger mean DPOAE decrease at all presentation levels.

#45 11:15-12:30 pm

**Perceptual Segregation of Talkers by Simulated Cochlear Implantee: Effects of F0 and Vocal Tract Length Manipulation**

Caitlin Meuel, Audiology  
Carol Mackersie, Speech Language and Hearing Sciences

Objectives: To measure the contribution of differences of fundamental frequency (Fo) and vocal-tract length on speech perception by simulated cochlear implantees in the presence of competition from a second talker. Design: Cochlear implant simulation used Shannon’s noise vocoder technique with 4, 8, 16, and 32 channels. Target and competition was speech of same talker. Mean Fo was modified to produce target/competition differences of 0 and 9 semitones (using pitch synchronous overlap-add method). Formant frequencies were shifted to give 0 and 38% difference of apparent vocal-tract length. Performance determined by Bolia’s coordinate-response measure (subjects asked to repeat key words of number and color for talker giving specific call sign). Subjects were 28 young hearing adults in two groups, listening with a high (approx 500 Hz) and a low modulation rate (approx 50 Hz). Results: 1. For both modulation rates, performance improved with apparent vocal-tract length – the effect increasing with number of vocoder channels. 2. For neither modulation rate, difference of Fo had no effect on performance, regardless of number of vocoder channels. Conclusions: For a cochlear implant user who is attempting to perceive the speech of one talker, in the face of competition from a second talker, differences of vocal tract length are likely to be more helpful than differences of average fundamental frequency, regardless of stimulus rate. But the benefit of vocal tract length differences will likely depend on the number of effective channels of stimulation. Outcomes: ability to report effects of fundamental-frequency and vocal-tract-length differences, and number of stimulation channels, on the likely ability of a cochlear implantee to perceive the speech of one talker in the face of competition from a second talker.

#44 11:15-12:30 pm

**Distortion Product Otoacoustic Emission (DPOAE) Growth Functions before and after 60 Minutes of iPod Use**

Leslie Willis, Audiology  
Peter Torre, Speech Language and Hearing Sciences

The purpose of this research was to examine how distortion product otoacoustic emission (DPOAE) growth functions change after 60 minutes of iPod use. Thirty-one women and eight men (mean age = 22.2 years; SD = 3.2 years) volunteered. Participants had normal middle-ear function and passed a hearing screening (500, 1000, 2000, and 4000 Hz at 25 dB HL). DPOAEs were measured with F2 varying from 4000 to 1000 Hz and L1/L2 pairs of 55/45, 60/50, 65/55, 70/60, and 75/65 dB SPL. Growth functions were obtained before and after each participant listened to a 60-minute playlist at a comfortable volume, determined by each participant. Mean comfortable listening level was 79.5 dB SPL (SD = 8.6 dB). Mean Post-Music DPOAE growth functions were lower in level compared to mean Pre-Music functions for 1300, 1600, and 2000 Hz. Mean decreases were approximately 0.3 to 2.2 dB with the most consistent decreases occurring at 1600 and 2000 Hz. The lowest presentation level pair (55/45 dB SPL) was most sensitive to DPOAE level decreases, which were between 0.9 and 2.2 dB.

#46 11:15-12:30 pm

**Verb learning in Action! 2-year-olds use Communicative Intentions to Learn Novel Verbs in a Dynamic Context**

Amy Pace, Speech, Language, and Hearing Sciences  
Margaret Friend, Psychology

This research extends Friend and Keplinger’s work on 24-month-olds’ ability to use pragmatic/linguistic cues to map a label to one action within a sequence. Previously, thirty 24-month-olds
participated in a within-subjects control and test phase. Joint reference during control was established at the beginning and end of the three-action sequence, while gaze and label cues during test bounded only the target action. During control, responses indicated a primacy effect (53%), but little bias toward performing the target (20%), or final action (27%). During test, children watched the experimenter (E) perform the sequence in one of three between-subjects Conditions: (1) novel label and gaze, (2) gaze alternation only, or (3) novel label only. In Conditions 1 and 2 (but not 3) the cues “Look, There!” accompanied the social-pragmatic cues. Children were able to map a novel verb to its referent only in Condition 1. During control, children may have inferred that the entire event stream was the intended referent requiring a richer set of cues to determine the intended referent during test. Also, including “Look, There!” in all Conditions might facilitate mapping. Thus, thirty 24-month-olds will participate in a no-control experimental phase to determine whether carry-over effects from the control might explain previous findings. Children’s re-enactment of the E’s action in the same three between-subjects conditions will be used to assess word-referent mapping. In all conditions, the markers, “Look, There!” bookend the target action. We expect that these data will provide a systematic replication; toddlers will require a rich set of pragmatic and linguistic cues to map words to referents in a dynamic context. Secondly, we expect that cues to joint-attentional focus in the absence of gaze alternation will be insufficient to induce word-referent mapping.

Session A-1
Poster: Chemistry
Friday, February 29th, 2008, 8:45 am – 12:30 pm
Location: Montezuma Hall South

#47 11:15-12:30 pm
The Growth Kinetics of Silver Nanoparticles Produced by the Reduction of Silver Nitrate
Kelly Laggner, Chemistry
David Pullman, Chemistry

The growth kinetics of silver nanoparticles, formed by the reduction of silver nitrate with the addition of silver citrate, was explored in real time by UV/Visible absorption spectroscopy with the goal of establishing the mechanism of growth. A silver nitrate solution was heated in a home-built variable temperature cuvette holder in a UV/Visible Absorption Spectrometer. Once the solution reached the desired temperature (typically 60-80 °C), sodium citrate was added, and absorption spectra were then taken between 400-800 nm every minute until the absorbance of the nanoparticle peak (420 nm) reached a value of 1. Application of Beer’s Law allows the time dependence of the nanoparticle concentration to be calculated, and differentiation of the time dependence allows the reaction rate to be determined. Our results indicate that the production of nanoparticles is autocatalytic and therefore difficult to precisely control. We are currently working on the methods of better controlling the rate, which in turn, should allow us to grow nanoparticles of a much narrower size distribution.

#48 11:15-12:30 pm
The Relative Efficiencies of Light Versus Heat in the Formation of Silver Nanoparticles
Gabriela Espinoza, Chemistry
David Pullman, Chemistry

The formation of silver nanoparticles has received considerable attention due to their antibacterial properties and interesting physical characteristics. Two conditions are known to result in the formation of silver nanoparticles from silver ions, exposure to UV and visible light and exposure to heat. In the present work, silver nanoparticles were grown in an aqueous solution of silver nitrate and sodium citrate. The relative contributions and efficiencies of light versus heat during the growth of the nanoparticles were studied by exposing the solutions to controlled amounts of light and heat. Initially, red and blue incandescent lights were found to induce growth, but the ~25°C rise in temperature made it impossible to distinguish whether heat or light was more effective and if there was a synergistic effect. To study the effects of heating, a variable temperature cuvette holder was designed and constructed for use in an UV Diode Array Absorption Spectrometer. A quartz cuvette was used with a filter to block all UV light from entering the sample. The sample of silver nitrate was heated to 60 - 80°C and then sodium citrate was added. The absorption spectrometer was used to determine the rate of growth of the nanoparticles and it was found that temperatures above 60°C became increasingly efficient in the production of the nanoparticles. Further experiments will be done using a wavelength-tunable LED light to minimize the temperature rise of the solution and allow a better separation of the effects of heat and light.

#49 11:15-12:30 pm
A Mass Spectrometry Technique to Reduce Background Hydrogen Signal Under an Ultrahigh Vacuum Environment
Mallory Hinks, Chemistry
David Pullman, Chemistry

The principle technique used in the desorption study of hydrogen from silicon surfaces, a process important in the production of semiconductor devices, is mass spectrometry in ultrahigh vacuum chambers. The signal-to-noise ratio is often low because the small desorption signal is swamped by the large hydrogen
Miguel Arce, Psychology
Jennifer Thomas, Psychology

Prenatal alcohol exposure can alter physical, neural, and behavioral development, the range of which are referred to as fetal alcohol spectrum disorders (FASD). Outcome among children exposed to alcohol during pregnancy varies widely. Nutritional factors may contribute to some of this variability. Indeed, higher rates of FASD are observed in countries where malnutrition is prevalent. Recent epidemiological studies show that many women throughout the world may be choline deficient during pregnancy. These findings are alarming given that dietary choline deficiency can disrupt brain development and lead to behavioral alterations such as learning and memory impairments. In contrast, animal studies show that perinatal choline supplementation enhances cognitive development, even in subjects exposed to alcohol. The present study investigated whether dietary choline deficiency exacerbates alcohol's effects on brain and behavioral development. Sprague-Dawley female rats were randomly assigned to one of two diet conditions (40 or 100% recommended levels of choline), delivered from two weeks prior to pregnancy through weaning (postnatal day 21). A group from each diet condition was exposed to alcohol (6.0 g/kg/day) from gestational day 5 to 20. Pair-fed and ad lib lab chow control groups were also included in both diet conditions. The offspring were later tested on a series of behavioral tasks. Subjects exposed to alcohol and fed a choline deficient diet were hyperactive in an open field chamber compared to all other groups. In contrast, choline deficiency significantly impaired memory performance of all groups on a spatial learning task, including alcohol-exposed and controls \(F(2,34) = 7.7, p<.01\). These data suggest that nutritional deficiencies may exacerbate some of ethanol's teratogenic effects, a finding with important implications for the prevention of FASD. Supported by AA12446.

Shadow Structures to Standardize GoogleRanks™ BetweenDisconnected Components
Kris Mecadon, Physics
Peter Salamon, Mathematics and Statistics

Google™ Technology allows us to define ranks for states of a random walk. If the states are disconnected we have a decomposable walk. The shadow graph can be used to make connections and compare the GoogleRanks™ in different components. The biological example of interest is the graph derived from the distance matrix on phage proteins with the shadow graph linking all proteins in the same phage.

The Effects of Dietary Choline Deficiency and Prenatal Alcohol Exposure on Behavioral Development

Background: Aggressive behaviors, such as reactive-affective-defensive-impulsive aggression (RADI) in children and adolescents frequently result in psychiatric evaluation and treatment. Little is known about brain pathways involved in such behavior in youth, but a disturbance of central anxiety regulating regions such as the amygdala, and impairments in prefrontal brain pathways that regulate those anxiety pathways, may contribute to RADI pathophysiology. Methods: Boys between the ages 13 and 17 years who present with chronic RADI behaviors but without major depressive, anxiety or psychotic symptoms, and healthy
matched control boys, are recruited and carefully assessed for psychopathology. Subjects undergo functional magnetic resonance imaging (fMRI) while watching either emotional adult faces (angry, happy, sad, neutral), or performing a parametric motor inhibition (“Stop”) task. Results: Currently, five RADI (mean age 15±1 years) and five control boys (mean age 15±2 years) have been scanned. There were no significant differences between Mean verbal IQ scores between RADI and control boys. Anger Questionnaire scores were higher for RADI boys (mean±SD: 60±13) compared to controls (mean±SD: 41±6; p=0.02). RADI brain activation was increased in the left amygdala during the presentation of angry versus neutral faces compared to the control boys. RADI boys made 15% more mistakes and showed reduced prefrontal cortex activation compared to the control boys during the Stop task. Conclusion: These preliminary results indicate that RADI boys have increased amygdala response to potentially threatening angry versus neutral faces. Furthermore, reduced prefrontal brain activation during a motor inhibition task suggests possible impaired behavioral control in RADI.

#53 9:15 am

**Arterial Spin Labeling in Children: BOLD and CBF Hemodynamic Response to Auditory Stimulation**

Leanna Hernandez, Psychology
Pamela Moses, Psychology

Introduction: Functional magnetic resonance imaging (fMRI) is widely used for investigating cognitive neural activity. fMRI measures change in the proportion of oxygenated to deoxygenated blood in the brain during rest versus neural activity; the signal measured is referred to as the blood oxygen level dependent (BOLD) signal. Cerebral blood flow (CBF) is a main contributor to the BOLD signal, as it directly influences the proportions of oxygenated and deoxygenated blood present in the brain. Thus, changes in CBF throughout development may result in an age-related confound in interpretation of the BOLD signal. Observed differences in the BOLD signal between children and adults may be incorrectly attributed to differences in neuronal processing, when in fact BOLD signal differences are a by-product of underlying differences in CBF. The present study will use arterial spin labeling (ASL) to measure CBF and BOLD response to auditory stimulation in children and adults. Methods: Participants will be 10 individuals from three age groups: 8 year olds, 12 year olds, and adults. Images will be acquired on a 3T GE Signa scanner utilizing a PICORE QUIPPS II sequence during block design auditory stimulation. Absolute signal change of activated voxels for the CBF data and average percent signal change for both the CBF and BOLD data will be calculated for each subject and compared by group using an unpaired t-test. Results: Significant differences in resting and activity-driven absolute CBF are expected between each age group. An additional goal will be to assess the trajectory of CBF changes in typically developing individuals and to evaluate corresponding changes in the BOLD signal, which may indicate an age-related confound in developmental BOLD fMRI studies. Discussion: These findings will help to further inform the increasing number of developmental studies applying BOLD fMRI methods to the investigation of cognitive development throughout the lifespan.
Abstr Acts

50

The Daily Show than conservatives. Keep in mind this data set is from 2004 and since then Jon Stewart's following has only grown. By the 2008 elections it may already be larger. Jon Stewart is already mocking all candidates that have announced they're running for 2008 but he has been rougher on the conservatives, especially Rudy Giuliani saying how many people hate him. (The Daily Show With Jon Stewart 2007). He could be influencing his followers to hate Giuliani because as Shackleford observes, “When Jon Stewart believes something, students believe it. He who Jon Stewart hates, students hate,” which I have as well viewed to be particularly true. With such a young following watching in the period that they are most malleable to political molding The Daily Show could be causing a generational effect, a fuller generation of voters that tends to be more liberal than today's voting public.

#58 9:00 am

The Comedy of Political Participation: The Daily Show with Jon Stewart and American Youth

Larissa Dorman, Political Science
C. Richard Hofstetter, Political Science

The findings of this study demonstrate that exposure to "The Daily Show" with Jon Stewart has a significant positive impact on political participation among American youth. Using a large survey of students (18-24 years of age) and a survey of a cross-section of the American adult public, this thesis tests the hypotheses that exposure to "The Daily Show" with Jon Stewart increases the level of political participation among American youth and is also a more effective media indicator of political participation than other media forms. The study adapts Grunig's theory of situational involvement (from public relations research) to understand the processes involved as well as the incongruity theory of humor. It tests the assumption that viewers of "The Daily Show" participate politically to a greater extent than non-viewers in this cohort due to the mechanism of engagement, awareness, and efficacy. Data used to test assumptions are drawn from the 2005 Politics and Public Service and College Undergraduate Survey conducted by the Roper Center (N=1,204) and from the National Annenberg Election Survey conducted by the Annenberg Center (N=81,422) conducted in 2004.

#59 9:15 am

Female Competitiveness and Jealousy In The Gilmore Girls: Paris vs. Rory

Sarah Zoric, Communication

The contemporary television series The Gilmore Girls features 32-year-old single mother Lorelai raising her 16-year-old independent, intelligent daughter Rory. At first glance the show...
appears to promote new-age third wave feminist ideals such as professional independence, intellectual confidence and strong female friendships. However, through observing the text utilizing rhetorical criticism, a better understanding of the underlying message is revealed. Paris, Rory’s rival at school, is portrayed as the villain in the series due to her competitive nature, jealous tendencies and malicious attacks on Rory. Rory is portrayed as sweet, kind and continuously extends friendship to Paris, no matter the circumstance. Furthermore, Rory has a healthy family life, great academic success and receives plenty of attention from romantic male counterparts on the show. In opposition, Paris’s home life is rocky, she is portrayed as overly aggressive at school and is not viewed as attractive to the opposite sex. This is interesting in the stance that it directly correlates to the female gendered personality traits that are accepted and not accepted in our society. This representation would suggest that the girls are either rewarded or punished for their feminine personality traits, or lack there of. Rory is quiet, caring, sweet and sensitive, as a result she succeeds, while Paris who is loud, aggressive and competitive fails to attain what she desires in life. Therefore, The Gilmore Girls in reality in fact encourages traditional gendered norms, while appearing to promote a dominant feminist frontage.

#60 9:30 am

Empowering Subjugation: The Stealth Rhetoric of Dr. Laura Schlessinger

Alicia Walsh, Communication
Valerie Renegar, Communication

As a ten-time New York Times bestselling author and one of America’s top radio talk show hosts, Dr. Laura Schlessinger has become a powerful impetus in the backlash movement against women’s equality, consistently urging women to question and attack the feminist movement and its tenets. This study examines the rhetorical strategies employed by Schlessinger in her nonfiction bestseller The Proper Care and Feeding of Husbands (PCFOH) and its companion workbook, Woman Power (WP). Working within an ideological criticism framework, I examine the hegemonic ideology that serves as the foundation for Schlessinger’s arguments as well as the primary individual strategies she resources in renewing, reinforcing, and defending this ideology. My findings reveal that Schlessinger utilizes three main rhetorical strategies in PCFOH and WP: perspective by incongruity, metaphor, and narrative. Through perspective by incongruity and metaphor, Schlessinger provokes an identity crisis within her female readers that renders them — and their ideologies — vulnerable. Using narrative, she then lays the foundation for the repositioning of self that follows identity crises, leading her readers to settle into a fairly stable new orientation as “proper wives” who desire and value love, marriage, and family over personal success, acquisition, and individual empowerment. Conclusions of this study delineate the applicability of these findings in examining other backlash texts and better understanding the inner workings of the backlash movement as a whole.

#61 9:45 am

Sex and the City: Orgasm-havin,’ High-heel-wearin’, Workin’-woman, Love-chasin’ Feminism

Lena Schmidt, Women’s Studies

This paper examines the popular HBO television show Sex and the City as a feminist text. I locate the show within the contemporary television market and within the history of feminist theories and I locate myself as an acafan. Looking at examples from several episodes, I assert that Sex and the City is feminist in colloquial notions of feminism, as many young women understand it today: women having power over their own lives, bodies, and sexuality and having opportunities to achieve economic, political, and social success. I claim that the series as a whole can be considered a feminist text based on the acknowledgement that it is a space in which women are represented talking about and enjoying sex. This paper also looks at the significance of various representations of queers within the show in the context of the contemporary television market. While recognizing Sex and the City’s feminist potential, this paper also examines the centrality of white, (mostly) straight, skinny, pretty, able-bodied, well-educated middle class women within a heterosexual structure, the stereotypical representations of people of color on the show, and the problems these issues pose in claiming the show as a feminist text.

#62 10:00 am

Radio Broadcasting and Popular Culture: Forming the Nation in Oaxaca, Mexico, 1920-1940

Octavio Garcia, Latin American Studies
Ramona Perez, Anthropology/ Latin American Studies

In 1920 Mexico was a divided nation that struggled to achieve stability and abandon the differences that had divided it as a result of the conflict of 1910. The government sponsored cultural programs during the 1920s and 1930s were attempts to incorporate the cultures and people of Mexico into the nation and thus, unite the people of Mexico through music, dance, and the arts. The mestizo, or the mixture of the Indian with the European, was chosen as the identity of Mexico because it symbolized the blending of cultures that had occurred since the arrival of the Spanish. However, many parts of Mexico continued to be indigenous societies. This placed the Mexican State with the challenge of incorporating non mestizo groups into the idea of a mestizo nation. Since many indigenous groups lacked a high degree of Europeanness, the Mexican State and its intellectuals considered
Session A-4

Oral Presentation: Philosophical Thoughts
Friday, February 29th, 2008, 8:45 am
Location: Chantico

#63 8:45 am

Participating in Time

Timothy Lewendon, Philosophy
Steve Barbone, Philosophy

In the Confessions Book XI, medieval philosopher St. Augustine asks a question of himself that many philosophers have pondered. Augustine asks: “What, then, is time? If no one asks me, I know; if I want to explain it to someone who does ask me, I do not know.” I believe that a subjective view of time and an objective view of time can co-exist as long as we understand their proper applications and relationship to one another. In this paper, I will defend the theory that although we participate in time objectively, we really do experience time through a mentally subjective process. To illustrate this theory, I will first lay out Augustine’s argument for time. Second, I will present a major objection to Augustine’s view held by proponents of the objectivist theory of time. Third, I will show how the view that we experience time objectively is false and that we experience time subjectively is true. Fourth, I will demonstrate how we do experience time through mental subjectivity even when we do participate in time objectively.

#64 9:00 am

Hume: a Skeptical, Coherent, Empiricist

Daniel Callies, Philosophy
Steve Barbone, Philosophy

Philosophy, as most philosophers know, does not always provide answers. It provides us with a way of thinking about or approaching issues, a systematic way of viewing the world. These systems or ways of viewing the world are always built upon foundations or “first principles” which cannot be brought into question and are usually a priori reasoning. In my paper I address charges raised against the eighteenth century Scottish philosopher, David Hume, of being simultaneously both an adherent of radical skepticism and the model empiricist. I propose that upon adopting Hume’s first principles a coherent system is developed which is both consistently empirical and skeptical.

#65 9:15 am

Addiction: An Interpretation of David Hume’s Philosophical Analysis of Religion

Stanton Stock, Philosophy
Steve Barbone, Philosophy

David Hume, in An Enquiry Concerning Human Understanding, performs an analysis of religion, particularly Christianity, claiming it is founded on beliefs which are contrary to reason and violations of the laws of nature. An addiction can be defined as a psychological and/or physical dependence on a substance, activity, or relationship as manifested by an inability to abstain in the face of serious physical, emotional, social, and legal consequences. This essay will compare Hume’s philosophical analysis of religion with a psychological analysis of addiction to support the claim that a psychological analysis of addiction is an addiction.

#66 9:30 am

A Much Needed Critique of Jean-Paul Sartre’s “Existentialism Is a Humanism”

David Burris, Philosophy
Steve Barbone, Philosophy

Jean-Paul Sartre, as one of the few philosophers to label himself, at least at one point in his academic career, an “existentialist,” views it his duty to assist in explicating, clarifying, and defending the primary existentialist assumptions to the academic community of his day. In his famous lecture entitled “Existentialism Is a Humanism,” Sartre makes his famed statement that “existence precedes essence,” asserting it as the common assumption that...
most, if not all, existentialist philosophers take to be the fundamental starting point for their philosophical enterprises. This paper seeks to evaluate this central claim along with several of the corresponding effects as Sartre enumerates them further on in his lecture. It is my view that Sartre draws several faulty conclusions, the likes of which can easily be shown by a simple break down of his arguments. I will give special attention to the assertions of existence preceding essence based on the absence of God and on the unfounded leap from individual responsibility to universal responsibility. In the end, I will conclude that all is not lost for Sartre’s project; however, further argumentation is necessary to establish logical soundness and internal coherence.

#67 9:45 am

**Dogen on Zazen, the Lotus Sutra and Upaya**

Carol Aguilar, Philosophy

Sandra Wawrytko, Philosophy

Why did Dogen, 13th century philosopher and founder of Soto Zen in Japan, regard the Lotus Sutra so highly since it emphasized the use of various upaya (skillful means) in order to bring all to Buddhahood, whereas Dogen advocated reliance on zazen (seated meditation) alone? My research explores Dogen’s radical conceptions of zazen, upaya and sutra in order to reconcile these two perspectives. In particular, I use the Parable of Digging for Water from Chapter 3 of the Sutra to compare how methods and goals are viewed in the Lotus Sutra and Dogen’s Zen. Dogen’s thought on two implications of religious practice -- 1) practice as repetition and 2) practice as realization -- are examined to further explain his devotion to the Lotus Sutra alongside his singular recommendation of zazen. Finally, I select from among Dogen’s many references to the Sutra three of the chapters in his master work, the Shobogenzo, to discuss in detail (Lotus Flowers Unfolding Lotus Flowers, Reading Sutras, and Buddhist Scriptures.)

#68 10:00 am

**Two Birds with One Stone: Evidence for Biological and Computational Theories of Consciousness**

Luis Favela, Philosophy

Mark Wheeler, Philosophy

Nobel laureate Gerald Edelman’s biological theory of consciousness is arguably the most concise explication of a biologically based description of the evolution and development of consciousness. The backbone of Edelman’s theory is the Theory of Neuronal Group Selection (TNGS). The TNGS is an evolutionary approach to the means by which various globally mapped groups of neurons facilitate fitness. Although self-described as not “chauvinistic” in terms of human-only consciousness, Edelman argues against the possibility of strong artificial intelligence. Strong A.I. generally refers to computational forms of consciousness on par with human forms of consciousness, as opposed to weak A.I. that generally refers to the ability to replicate particular aspects of consciousness. The problem with Edelman’s argument against the possibility of strong A.I. lays in the means by which he supports his own theory of consciousness. Edelman greatly relies upon the field of textoretics, that is, the arena of network automaton theory, as a basis for displaying the properties of the TNGS. Darwin II and III, recognition automata developed by Edelman and his team, have served to successfully display the major premises of the TNGS. This is where Edelman’s argument against strong A.I. begins to come apart. If the use of textoretics as embodied by such recognition automata as Darwin II and III serve as such strong sources of support for Edelman’s theory of consciousness, whereby the more advanced, successful, and able recognition automata become at mimicking the abilities of conscious living beings, then the more likely are the possibilities of the multiple realization of consciousness in non-human beings become. In explicating theories surrounding philosophical functionalism and in displaying possible non-Turing forms of computational processing, it will become evident that Edelman’s evidence for his own theory of consciousness also becomes evidence in favor of concepts he argues against.
#70 9:00 am

**Impact of Rapid Global Warming on Microbenthic Community Structure: Using Rank-abundance Curves to Quantify Ecological Response to the Paleocene-Eocene Thermal Maximum**

Amelinda Webb, Geological Sciences
Lindsey Leighton, Geological Sciences

The current biodiversity crisis is beginning to affect humanity negatively, and the need to understand the processes underlying extinction grows as the rate of species’ loss rises. This study uses rank-abundance curves (RACs) to examine the community response to the extinctions caused by global warming during the Paleocene-Eocene Thermal Maximum (PETM), which is an appropriate analogy for the rapid modern climate change. RACs reflect the partitioning of resources in a community or guild, and as such respond to the changes inflicted by disturbances and stress. Using RACs can detect increasing levels of environmentally induced community stress before the actual loss of taxa. When a community is exposed to continuing disturbances, then the succession never proceeds, and the community structure reflects the high stress level. An extinction event is a period of high stress levels, and as such the community response will be quantified by RACs. In order to map the ecological effects of the PETM, data were used from community analyses of benthic foraminifera and ostracodes before, during and after the PETM from ODP site 690. The communities are relatively stable before the onset of the event, but each responds differently. The ostracode communities are relatively stressed before the onset of the PETM, and then become less stressed during the event before returning to the pre-event levels of stress. The benthic foraminifera community is stable before the event, but with the onset of the event the community becomes increasingly stressed leading up to an extinction, before stabilizing and finally recovering after the event. The pre- and post-event RACs are significantly different (p<0.001). These patterns show the utility of RACs for measuring the response of different communities to environmental stress, and the approach used in this study has great potential for examining other extinction events, including the current crisis.

#71 9:15 am

**Measuring the Slow-down of the White Dwarf’s Spin in AE Aquarii**

Michael Dulude, Astronomy
William F. Welsh, Astronomy

A cataclysmic variable is a pair of stars in which the intense gravity from a white dwarf star causes material to be siphoned from its companion star. AE Aquarii is extraordinary because of its extremely short spin period and strong magnetic fields, which are thought to eject material from the binary star system. This causes the spin of the white dwarf to slow, in much the same way that figure skaters spin slower as they extend their arms from their bodies. We report optical timing of pulsations tied to the spin of the white dwarf in an effort to better understand if the spin rate is slowing down at a constant rate, or if it is changing, which tells us a great deal about the braking mechanism.

#72 9:30 am

**On the Non-axisymmetric Nature of Hot Jupiter Exoplanets**

Raj Pandya, Astronomy
William Welsh, Astronomy

The field of extra-solar planets is currently one of the most exciting research topics in astronomy. A little more than a decade after the discovery of the first planet outside our Solar system, there are now over 250 known exoplanets. One of the most intriguing and curious aspects of these planets is that a large portion of them are gas giants, such as Jupiter, but they orbit very close to their parent stars. With orbital periods of just a few days, these “Hot Jupiters” reside even closer to their host stars than Mercury does to our Sun. Due to their close proximity to their stars, these planets experience strong gravitational fields unparalleled to anything available in our Solar system. The gravitational forces are so strong they warp the physical shape of the planets, causing them to be non-symmetric spheroids. Using computer generated model planetary systems, we are able to calculate the deviation from spherical shape for several planets. The degree of physical asymmetry is a function of orbital distance and planet-to-star mass ratio. I find the observability of this effect for typical transiting planets is on the order of the current observable limits. The physical size of the distortion is comparable to important characteristic lengths in the atmospheres of Hot Jupiters, such as the pressure scale height. This implies several implications for the dynamics of Hot Jupiter atmospheres are likely due to the non-spherical, non-symmetric nature of these planets. It will be important to take the true shape of Hot Jupiters into account in future modeling and observations, which will be 10 times more accurate than the present limits.
Session A-6
Oral Presentation: Hydrology and Soil Erosion
Friday, February 29th, 2008, 8:45 am
Location: Council Chambers

#73 9:45 am
System Parameters of the Eclipsing Planet HD 17156b
Abhijith Rajan, Astronomy
William Welsh, Astronomy

Planets around other stars allow us to investigate the formation and evolution of solar systems. Eclipsing planets allow us to measure the orbital dynamics, mass, radius and recently features of their atmospheres. In October 2007 we confirmed the eclipse of the planet HD 17156b and measured its system parameters. It has the highest eccentricity (e = 0.67) of all eclipsing planets giving rise to extreme seasonal variations, which combined with its high density (~3.8 g/cc), and long orbital period (21.2 d) makes it one of the most interesting exoplanets discovered.

#74 8:45 am
Quantifying the Spatial and Temporal Distribution of Sediment Loading to the Perimeter of Construction Sites
Michael Bogonko, Water Resources Engineering
R. Edward Beighley

Large scale construction projects can dramatically change the drainage pattern of a landscape. During the earthwork phases of construction internal drainage networks are altered even though connections to the existing networks beyond the site boundary must be maintained. These modifications result in large differences in contributing area and sediment loading to specific points along the site perimeter. While most construction projects require stormwater pollution prevention plans to control runoff, these plans often only consider pre- and post- site conditions. Due to significant increases in soil erosion and off-site sediment discharge potential during construction, a better understanding of the sediment loadings throughout the construction process is needed. This study investigates the spatial and temporal distribution of drainage characteristics and sediment loading to the perimeter of construction sites using GIS-based methodologies. A case study is presented to illustrate the approach for initial, 25, 50, 75 and final grading. The study site has a land area of 210 ha and is located in southern California. The site has a perimeter length of 3.6 km, using a 0.6 meter elevation grid; the perimeter consists of 7191 pixels, where each pixel represents one watershed draining to the perimeter. The results show how the distribution of drainage areas, flow lengths and estimated event sediment loading to the perimeter change over time during the grading process. Sediment loading is estimated using the RUSLE erosion model. Based on the grading schedule, the site is characterized at five time intervals: initial, 25%, 50%, 75% and final grade.

#75 9:00 am
Performance Probability Distributions for Sediment Control Best Management Practices
Lauren Ferrell, Civil Engineering
R. Edward Beighley, Civil, Construction and Environmental Engineering

Controlling soil erosion and sediment transport can be a significant challenge during the construction process due to the extent and conditions of bare, disturbed soils. Best Management Practices (BMPs) are used as the framework for the design of sediment discharge prevention systems in stormwater pollution prevention plans which are required for construction sites. This research focuses on commonly-used BMP systems for perimeter control of sediment export: silt fences and wattles. Although these systems are widely used, the physical and engineering parameters describing their performance are not well understood. Performance expectations are based on manufacturer results, but due to the dynamic conditions that exist on a construction site performance expectations are not always achievable in the field. Based on experimental results, product performance is shown to be highly variable. Experiments using the same installation procedures show inconsistent sediment removal performances ranging from zero to near 100 percent. The goal of this research is to improve the determination of off-site sediment yield based on probabilistic performance results. BMPs are evaluated in the Soil Erosion Research Laboratory (SERL) in the Civil and Environmental Engineering department at SDSU. SERL experiments are performed on a 3-m by 10-m tilting soil bed with a soil depth of 0.5 meters and a slope of 33 percent. The simulated storm event consists of 51 mm/hr for 20 minutes followed by 102 mm/hr for 30 minutes. The storm event is based on an ASTM design storm intended to simulate BMP failures. BMP performance is assessed based on experiments where BMPs are installed per manufacture specifications, less than optimal installations, and no treatment due to the dynamic conditions that exist on a construction site conditions. Preliminary results from 45 experiments are presented and used to develop probability distributions for BMP sediment removal efficiencies. The performance results are combined with spatial and temporal distributions of perimeter sediment loadings for a construction site to estimate offsite sediment discharge. The results highlight the importance of considering BMP performance as a distribution rather than a single mean value for designing sediment removal systems.


#76 9:15 am

**Effects of Impervious Area Estimation Methods on Simulated Peak Discharges**

Maryam Kargar, Civil Engineering
R. Edward Beighley, Civil, Construction and Environmental Engineering

Knowing the percentage of a watershed covered with impervious area is critical for understanding its runoff characteristics and flooding potential. However, there are several available methods for estimating watershed imperviousness (IMP). The objective of this research is to understand the effect of the IMP estimation method on simulated flood frequency distribution. This research compares two methods for estimating imperviousness in the Mission Creek watershed (31 sq km) located in Santa Barbara, CA. These two methods are characterized as high resolution from manually digitizing aerial photographs and medium resolution from automated interpretation of satellite data. The HEC-HMS model was used to simulate rainfall-runoff and assess the effects of the estimated IMP on the flood frequency distribution for this watershed for four events (2- and 100-yr for 6-hr and 24-hr durations) and different scenarios. The model used combinations of Green-Ampt and Curve Number losses and Kinematic wave and unit hydrograph routing. The Green-Ampt model tended to over-predict peak discharge relative to the CN model, and Kinematic wave routing and unit hydrograph agreed well except for the largest events where the efficiency of the routing decreased travel time sufficiently to increase the peak discharge. The CN model was more sensitive to the impervious surface estimation method relative to the Green-Ampt model due to the mechanisms for incorporating imperviousness into the models. At the watershed scale, the effects of imperviousness estimation method on simulated peak discharge ranges from approximately 16% for the 2-yr event to 9% for the 100-yr event. At the model unit scale, the difference in peak discharge between impervious estimation methods exceeded 41 and 21% for the 2- and 100-yr events, respectively. Overall, the two IMP estimation methods result in different peak discharges but neither method consistently results in discharges less than flood frequency based discharges.

#77 9:30 am

**Quantifying Runoff Water Quality Characteristics from Nurseries Subjected to Altered Irrigation and Fertilizer Regimes**

Shraddha Samant, Environmental Engineering
R. Edward Beighley, Civil, Construction and Environmental Engineering

Excessive application of fertilizers in nurseries often contributes to elevated nutrients (NO₃, PO₄) in surface waters throughout the United States which stresses aquatic ecosystem and generates health problems. As quantifying a plant’s demand for water and nutrient is difficult, results are very limited on how to fertilize and irrigate specific plants. The research was done by combining altered irrigation practices and different fertilizer rates at nursery area. It is intended to provide a better understanding of how irrigation and fertilizer management can be used for long term reduction of nutrients which in turn will lead to improve surface water quality, aquatic habitats and overall stream health.

#78 9:45 am

**Quantifying the Effects of Soil Compaction on Runoff and Erosion**

Anna Wernet, Civil Engineering
R. Edward Beighley, Civil, Construction and Environmental Engineering

Anthropogenic activities, such as construction, alter the Earth’s surface by disturbing the landscape and intensifying erosion processes. As construction continues rapidly worldwide, emphasis is being focused on improving construction techniques for minimizing soil erosion and improving stormwater quality. The challenge on construction sites is that soil surface conditions are dramatically modified in terms of depth and density throughout the various phases of earthwork. In addition, the current understanding of how altered soil density impacts infiltration and soil erosion during rainfall events is limited. The objective of this research is to quantify and explain the effects of soil compaction on runoff and erosion for bare soil conditions. Laboratory experiments were performed in the Soil Erosion Research Laboratory (SERL) at San Diego State University. SERL experiments utilize a 3-m by 10-m tilting soil bed with a soil depth of 0.5 meters and a slope of 33 percent. The simulated storm event consists of two periods: 51 mm/hr (2 in/hr) for 20 minutes, followed by 102 mm/hr (4 in/hr) for 30 minutes. The storm event is based on an ASTM design storm intended to simulate BMP failures. All experiments where preformed using a Sandy Loam soil (USDA). Soil densities were varied from 1.2 to 1.6 g/cm3. Based on the experimental data sediment to runoff ratios vary from 0.3 to 0.5 Kg/L depending on soil density. Preliminary results show that the relationship between soil erosion and soil density initially decreases to a minimum, then increases until becoming stationary. This relationship is explained by characterizing the runoff and erosive processes at varying soil densities. A primary factor in this research is the decrease infiltration capacity with increasing soil density.
#79 10:00 am  
**Quantifying the Spatial Distribution of Hill Slope Erosion Using a 3-D Laser Scanner**  
Bryan Scholl, Civil and Environmental Engineering  
R. Edward Beighley, Civil, Construction and Environmental Engineering  

Soil erosion is a complicated process involving many interdependent variables including rainfall intensity and duration, drop size, soil characteristics, ground cover, and surface slope. The interplay of these variables produces differing spatial patterns of rill versus inter-rill erosion by changing the effective energy from raindrop impacts and the quantities and timing of sheet and shallow, concentrated flow. The objective of this research is to characterize the spatial patterns of rill and inter-rill erosion produced from simulated rainfall on different soil densities and surface slopes using a 3-D laser scanner. The soil used in this study is a sandy loam with bulk density due to compaction ranging from 1.25-1.65 g/cm³. The surface slopes selected for this study are 25, 33, and 50 percent and represent common slopes used for grading on construction sites. The spatial patterns of soil erosion are measured using a Trimble GX DR 200+ 3D Laser Scanner which employs a time of flight calculation averaged over 4 points using a class 2, pulsed, 532 nm, green laser at a distance of 2 to 11 m from the surface. The scanner measures point locations on an approximately 5 mm grid. The pre- and post-erosion scan surfaces are compared to calculate the change in volume and the dimensions of rills and inter-rill areas. The erosion experiments were performed in the Soil Erosion Research Laboratory (SERL), part of the Civil and Environmental Engineering department at San Diego State University. SERL experiments utilize a 3-m by 10-m tilting soil bed with a soil depth of 0.5 meters. Rainfall is applied to the soil surface using two overhead Norton ladder rainfall simulators, which produce realistic raindrop diameters (median = 2.25 mm) and impact velocities. Simulated storm events used in this study consist of rainfall intensities ranging from 5, 10 to 15 cm/hr for durations of 20 to 30 minutes. Preliminary results are presented that illustrate a change in runoff processes and erosion patterns as soil density increases and reduces infiltration characteristics. Total soil loss measured from the bottom of the erosion bed is compared to the volume of soil loss determined using the laser scanner. Due to soil consolidation during the experiment, the accuracy of measured soil loss from the laser scanner increases with increasing soil density. Ratios of rill and inter-rill erosions for each experiment are also presented.

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Session A-7  
Oral Presentation: Chemical Biology  
Friday, February 29th, 2008, 8:45 am  
Location: Quetzalcoatl A

#80 8:45 am  
**New Insights into the Establishment of Left/Right Asymmetries in the Urochordate Ciona intestinalis: A Synthesis of Current Findings**  
Alejandro Feria, Interdisciplinary Studies  
Robert Zeller, Biology  

In vertebrates, a number of genes are expressed with left/right asymmetry during embryonic development. Disruptions in the cascade of events which govern asymmetric gene expression have been implicated in several human pathological processes including: Bardet-Biedl syndrome, polycystic kidney disease, situs inversus, pancreatic islet dysplasia, retinopathy and certain forms of deafness. However, the molecular mechanisms which establish and regulate normal asymmetrical gene expression remain poorly understood. The model organism Ciona intestinalis is an easily manipulated chordate with a simplified genome. Urochordates are the sister group of vertebrates and by examining gene expression and function in ascidians, we will gain insight into the evolution of the gene regulatory networks that establish asymmetric gene expression.

#81 9:00 am  
**Conformational Analysis of an Antineoplastic Class of Macrocycles**  
William Disman, Applied Mathematics  
Shelli McAlpine, Chemistry  

Recent studies on the bio-potency of Sansalvamide A derivatives show promising properties against pancreatic, colon, breast, prostate, and melanoma cancers. Recent NCI panels have also proven potency on leukemia, thus a more detailed analysis of the structural features within the macrocycles is needed to explore further roles of the molecules. Sansalvamide A (San A) is a marine fungal product that was discovered by William Fenical. Through structural manipulation of peptide derivatives based on structure-activity relationship (SAR) and 2-D NMR, valuable trends arise to provide a systematic means of controlling bio-potency. Through the use of various biological assays as well as computational resources it is possible to analyze the effect of such conformational changes and gain insight into the development of more potent compounds. Multiple derivatives of the San A scaffold were synthesized and their activity on a pancreatic cancer cell line PL-45 and the colon cancer cell line HCT-116 is
reported here. Then, using MacroModel within Maestro, we have validated the preferred conformation of many San A derivatives. Using Monte Carlo methods as well as conformational constraint and limiting electrostatic and steric qualifications, a pool of conformers was created. By arranging the lowest energy conformer within NAMFIS and using 2D NMR experiments NOESY and ROESY predictive studies of the proposed protein target of the derivatives are described. By performing pull-down assays we have determined that the protein target of these derivatives is Hsp90, and therefore computational validation combined with incorporation of the co-crystal structure of Hsp90-drug can be used to determine the active conformation of the molecule when bound to Hsp90. This crystalline matrix will then be analyzed using NAMFIS, a NMR based modeling program, to create a dynamical picture of the Sansalvamide A derivatives. Future potent derivatives can then be predicted using this hybrid computational/experimental approach.

Session A-8
Oral Presentation:
Physics and Computational Sciences
Friday, February 29th, 2008, 8:45 am
Location: Quetzalcoatl B

#82  9:15 am
**Holliday Junctions and Other Branched DNA Repair Intermediates are In Vivo Targets of Bactericidal Peptides**
Anca Segall, Biology
Adrian Contreras, Microbiology

Holliday junctions are four-armed DNA intermediates that are central in pathways of DNA repair and recombination in both prokaryotes and eukaryotes. Failure to resolve Holliday junctions and other branched DNA repair intermediates is detrimental to cell viability. Previously, we discovered hexapeptides that inhibit recombination by binding to and blocking the resolution of Holliday junctions in vitro. One of these Holliday junction-binding peptides, wrwycr, is a potent bactericidal that causes DNA damage, filamentation, and DNA segregation abnormalities in both Gram positive and Gram negative bacteria. Evidence suggests that wrwycr binds to branched DNA intermediates that arise during recombination-dependent repair, preventing their resolution and resulting in bacterial death. In order to create DNA damage that should block replication, we used a plasmid with a strong gyrase site (SGS), and treated cells with norfloxacin, an inhibitor of DNA gyrase which traps covalent complexes between the enzyme and DNA. Another way we introduced DNA damage was to overexpress topoisomerase I, either wild type, a ligatition defective mutant, or a cleavage defective mutant, under the control of a pBAD promoter. Our approach was to use epifluorescence microscopy, growth curves and viability assays to investigate the in vivo effects of wrwycr on these E. coli strains. We hypothesized that overexpression of the ligation defective topoisomerase I will increase DNA damage and recombination-dependent repair and therefore increase the number of branched DNA targets for our peptides. We have found that damage caused by the peptides is synergistic with damage caused by the mutant topoisomerase I, resulting in extensive bacterial cell death, filamentation, and DNA segregation abnormalities and consistent with the existing evidence that wrwycr binds to branched DNA repair intermediates. We are using two-dimensional agarose gel electrophoresis to look directly for accumulation of Holliday junctions in peptide-treated bacterial cells.

MBRS Program TR25GM58906

#83  8:45 am
**Magnetic Field Comparison Between Helmholtz Coils and a Simulated Three-coil Array**
Hau-Jian Liu, Physics
Richard Morris, Physics

Helmholtz coils are a two coil array commonly used to produce a homogeneous magnetic field over a relatively large region about the center of the coils. In a recent article in The Review of Scientific Instruments three physicists in China performed a computer simulated model of a three coil array superior in homogeneity to the two coil array. The simulated parameters used in the model were extended to four significant figures. We have constructed a three coil array limited to two significant figures. We will compare the homogeneity of constructed three coil and two coil array.

#84  9:00 am
**Measurements And Extrapolations of Different Parameters that are Observed in the Geometry of the Crista Membrane of Mitochondria**
Mariam Ghochani, Physics
Arlette R. Baljon, Physics

Electron tomograms of mitochondria have revealed that in normal mitochondria part of the inner membrane which referred to as cristal membrane contains of separated fragments along the inner mitochondrial space with specific geometry consisting of tubular and flat lamellar components. The conditions under which these morphologies can be obtained have been explained using an energy model* . To obtain the conditions that correlate to the existing physical conditions within the mitochondria different parameters are measured from the 3-dimensional image stack files of mitochondria with each image corresponding to a contour along the vertical direction. From the measured parameters other parameters which are observed in the geometry of cristal membrane

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*Energy model for mitochondrial morphology.
fragments are extrapolated; those variables are the number of tubes in the tubular part of the crista membrane per crista membrane fragment, the distance between the tubes, the length of the tubes, the distance between the crista membrane fragments, the radius of the lamellar part and the radius of the cross section of the mitochondria at each crista membrane fragment. The way these image stack files are obtained is by doing electron tomography on a 300nm-section of mitochondria and aligning the images from each tomogram; later these image stack files are used to do 3-dimensional reconstruction of mitochondria. The measurements are also evaluated by comparing the image stack files with the 3-dimensional reconstruction. The measurements on Hela cells reveal that there is usually a region where crista membrane fragments are packed and a region which they are less packed with the distance between the crista membrane fragments being about 4-5 times the distance in the packed region; and that the ratio of tube length to lamellar radius stays almost constant in differently shaped normal mitochondria. “A free energy model for the observed morphologies of the crista membrane of mitochondria” by Baljon et al. (Biophysical Society 2008 Abstracts)

#85 9:15 am

The Cosmological Constant and Compact Stars

Omair Zubairi, Physics
Fridolin Weber, Physics

The Cosmological Constant was originally proposed by Albert Einstein in 1916 as a modification of his field equations of General Relativity to achieve a stationary Universe; however, in 1929 Edwin Hubble discovered the Universe is not static but expanding. Recently, scientists have discovered this expansion rate is even increasing—leading to an “Accelerating Universe.” This acceleration which is caused by cosmic forces known as Dark Energy will change the solutions to Einstein’s field equations. This research project explores these different solutions for compact spherically symmetric stellar objects such as quark and neutron stars.

#86 9:30 am

Multimode Interferometry of Bose-Einstein Condensates in a Circular Waveguide

Marty Kandes, Physics
Michael Bromley, Physics

Simple circular waveguides promise to be an ideal architecture for building high-precision matter-wave interferometers that exploit the coherent source of atoms provided by Bose-Einstein condensates (BECs). Using finite difference methods, we perform numerical calculations of the time-dependent Gross-Pitaevskii equation in one and two dimensions to simulate gravity-induced quantum interference for counterpropagating BECs in a circular waveguide. The aim of this work is to clearly understand the impact multimode excitations and nonlinear interactions have on the feasibility of interferometric measurements. Our results vividly illustrate many of the challenges to be expected in performing these types of experiments.

#87 10:00 am

Structure and Thermal Evolution of Neutron Stars

Rodrigo Negreiros, Computational Sciences
Fridolin Weber, Physics

Neutron stars are among the most enigmatic objects in the Universe. They possess the mass of our sun but are several billion times smaller than it. The matter in the cores of neutron stars is therefore compressed to densities that are several times higher than the density of atomic nuclei. Under such extreme physical conditions the conventional building blocks of matter as we know (atoms, protons, electrons) give way to new and widely unexplored states of matter, such as superconducting quark matter and novel particle condensates searched for in the most powerful terrestrial collider experiments. In this paper we study the thermal evolution of neutron stars in order to explore the properties of ultradense matter and the inner workings of these objects. Due to the extreme complexity of the thermodynamics and structure equations we must solve them numerically. All the calculations are performed in the framework of Einstein’s theory of general relativity, since neutron stars curve the geometry of space-time so strongly that classical Newtonian theory of gravity fails to describe their properties. We have found that the thermal evolution of the star might vary significantly, depending on its composition. We hope that with our research we will be able to further constrain the current models for the composition of Neutron Stars.

#88 10:30 am

The Relationship between Visits to Academic Advising, Students, and Student’s Success

Melinda Schuricht, Psychology
Emilio Ulloa, Psychology

Other universities have used senior exit surveys and suggestions from students in order to develop strategies for improvement of advising services. The current assessment involves the results from 297 San Diego State University psychology seniors who
completed an exit survey upon completion of their undergraduate degree. Students were asked questions about various aspects of their undergraduate education including course work, faculty, future plans, research experience, and advising services. Previous research has explored how advising services are related to student success. The goals of this study were to determine if visits to advising were correlated with student success (measured with time to graduation, GPA, and post baccalaureate plans) in this sample and to identify characteristics of students who visit the advising office more or less often. Preliminary findings show that, visits to the advising office were correlated with plans for graduate school, but contrary to expectations visits to the advising office were associated with lower graduating GPA. However, those who were more involved with the university and the department through extracurricular activities, such as honors societies or clubs, visited the advising office more frequently. Implications for increasing visits to the advising office and targeting students who are less likely to visit the advising office will be discussed. Our goal was to use the exit survey results as means to improve advising services to better meet students’ academic needs.

#89 10:45 am

What’s at the Heart of Graduate Advising? An Exploration of the Student, Advisor and University Expectations

Kim Scruton, Communication
Patricia Geist-Martin, Communication

Beginning with an overview of the status of female faculty in higher education, this study explores how student, faculty, and organizational gender biases contribute to a doublebind for female professors. Master’s level advising is introduced as a necessary component to the graduate experience and one that is characterized by unique standards of advisor-advisee interaction. A connection is postulated between these unique standards of graduate level advising (psychosocial functions) and feminine styles of interaction (social, warm, emotional support) as an opportunity to acknowledge, evaluate, and reward feminine contributions in academia. Comparing ethnographic interviews with an analysis of current student evaluations of teaching (SETs) exposes a discrepancy between what graduate advisors and their students expect of the advising experience and what is indicated as evaluation-worthy behavior. Graduate professor and graduate student responses reveal four desirable advising qualities (knowledge, connection, accessibility, and timing) that could act as preliminary additions to current SETs. This research concludes with suggestions for improving advisor training and advisor evaluation at the master’s level.

#90 11:00 am

Incidence of Academic Probation in First-Year Students Who Attended New Student Orientation

Heather La Perle, Postsecondary Educational Leadership
Marilee Bresciani, ARPE/Interwork Institute

The purpose of this quantitative study is to determine whether remedial academic presentations at orientation help to decrease the incidence in which remedial students go on academic probation during their second semester. The study will examine pre-existing data from the population of remedial students who started at San Diego State University in Fall 2006 and Fall 2007 (the year the remedial component was added) and attended orientation to determine the incidence of academic probation in their second semester. Potential benefits of the study include a better understanding of whether a remedial presentation given at orientation help to decrease the incidence of academic probation. This, in turn, has the potential to increase the retention rate for the population of remedial students. Results of this study are pending and will be available by February 29, 2008.

#91 11:15 am

Examining Learning Outcomes in Student Personnel Preparation Programs

Jessica Hickmott, Postsecondary Educational Leadership
Marilee Bresciani, ARPE/Interwork Institute

The purpose of this study was to explore student learning outcomes in student affairs preparation programs. A grounded theory study was utilized to identify emerging themes in program outcome statements from 54 out of 171 student affairs graduate preparation programs. Graduate programs from various types of institutions including small, medium, and large, religious and non-affiliated, and four-year public and private institutions across the country participated in this study; all of them are listed in the National Association of Student Personnel Administrators’ (NASPA) Graduate Program Directory. As a result of the document analysis of outcomes gathered in this study, a comprehensive list of outcomes examining expected learning in preparation programs was compiled. Some of the themes identified in the results of this study include: knowledge of the roles and functions of student affairs, theories, history and philosophy, legal and ethical foundations, and research and assessment. Other themes articulated are multicultural competence, designing and evaluating programming, promoting student learning, leadership, and the ability for self-awareness and reflection. Findings did not include themes of counseling, collaboration with P-12 institutions, or collaboration with faculty members.
Session A-10
Oral Presentation: Cognitive Neurosciences
Friday, February 29th, 2008, 10:30 am
Location: Calmecac

#92 11:30 am
Changes in Arabic as a Foreign Language Programs in the United States since September 11 at Three Universities
Hope Jameson, Applied Linguistics
Ghada Osman, Linguistics and Asian/Middle Eastern Languages
This presentation addresses original researcher done by the presenter on the changes made in Arabic as a foreign language (AFL) programs at universities in the United States since September 11, 2001. More specifically, the three universities looked at were Harvard University, UCLA and Georgetown University. The objective of the research was to look at the changes in student population, curriculum, and choice of Arabic dialect in these university’s AFL programs. The hypothesis was that with the surge in the number of students taking AFL, there would have been major strides taken at universities to meet the demands of AFL students in a changing world. Harvard, UCLA and Georgetown were chosen for the size and age of their AFL programs. Heads of AFL programs at these universities were interviewed on whether or not they had seen changes in student population, curriculum or choice of dialects in their programs. Five students at UCLA were also interviewed about their goals in learning Arabic and whether or not UCLA’s AFL program had met their needs as AFL learners. After the interviews were compiled and analyzed, the results showed that despite the major surge in the number of AFL learners, little change has been made to the university’s AFL programs. In conclusion, a proposal will be made about what might better benefit the changing needs of a growing number of students interested in learning Arabic since September 11, including what sort of curriculum should be included and what choice of dialects AFL programs should include. This research will hopefully address what kinds of changes or modifications need to be made in AFL programs at universities across the United States.

#94 10:45 am
The Effects of Normal Aging on Temporal Order Memory for Fixed Sequences
Trinh Luu, Psychology
Paul Gilbert, Psychology
Memory for the sequential ordering of events is considerably affected by the normal aging process. Age-related degeneration has been observed in central regions of the brain that play a critical role in temporal order memory, particularly the medial temporal lobe and frontal lobe. Studies indicate that these regions of the brain are some of the first to be affected in the course of normal aging. The present study examines temporal order memory in older adults using a fixed sequence to access the ability of older adults to learn sequenced information. Participants were administered a visuospatial temporal order memory task on a computerized radial 8-arm maze. In the sample phase, participants were presented with a gray circle at the end of each arm, one at a time. They were instructed to remember the sequence in which the circles appeared. The circles were presented in the same order over the course of trials, resulting in a fixed sequence.

#93 10:30 am
Cognitive Sex Differences Reflected in a Visual Processing Bias for Movement Versus Object Characteristics
Jaclyn Yip, Psychology
Bob McGivern, Psychology
Men and women show statistical differences in unconscious abilities related to visual processing. Men tend to excel at skills that require targeting ability (i.e., throwing darts), while women tend to demonstrate greater accuracy in recognition tasks that depend upon unconscious awareness of object details. These conceptual differences appear to have a neurophysiological correspondence in the cortical pathways known as the dorsal and ventral streams, pathways that mediate “vision for action” and “vision for perception”, respectively. Previous studies show that the dorsal stream processes visual information about movement unconsciously as a basis for action. In contrast, the ventral stream pathway processes visual information consciously about object characteristics. In this study, we explored whether a bias towards processing information through one system versus the other might underlie human sex differences in targeting and unconscious object recognition memory. We hypothesized that targeting accuracy and object characteristic recognition are properties of the dorsal and ventral streams, respectively. To test this, we developed a computer task that measured subjects’ ability to accurately predict the point of interception of a slowly moving ball crossing a horizontal line. The ball disappeared prior to reaching the intercept line. Results showed that males were significantly more accurate than females at predicting the intercept point. A second computer-based priming task measured reaction time to identify whether an object was manmade or natural. The objects were represented by a black and white picture, a color picture, or the word for the object (e.g., “umbrella”). Results showed that female response times were significantly faster than males’ when responding to stimuli presented in color pictures, but not black and white objects or words. These combined results support a sex-based bias in visual processing pathways.
Following the sequence, participants were presented with two circles on two different arms of the 8-arm maze. They were asked to indicate which of the two circles appeared earlier in the sequence. Parametric manipulations of the temporal metric were accomplished by manipulating the temporal separation between the two choice circles. Both younger and older adults showed improved performance as temporal separations lags increased. Younger adults initially outperformed older adults on the task; however, older adults matched the performance of younger adults across trials. Although previous studies showed older adults are impaired in learning a temporal order memory task involving a random sequence, the present study indicates older adults can learn a temporal order task involving a fixed sequence. The identification of a key mnemonic processing deficit in temporal order memory may result in behavioral interventions that structure daily living tasks to mitigate interference in the temporal domain.

#95 11:00 am

**Working Memory Span for Threat and Neutral Words In Social Phobia**

Jessica Bomyea, Psychology
Nader Amir, Psychology

Research suggests that anxiety may interfere with performance on cognitive tasks (Eysenck, 1992). One explanation for this interference is that high level of anxiety are associated with worry and self-preoccupation, leading to decreased efficiency of executive functions (i.e., shifting between task-relevant and task-irrelevant stimuli in working memory, inhibition of task-irrelevant information, and updating information in working memory (Eysenck et. al 2007). Although researchers have examined the role of anxiety on shifting and inhibition, studies examining the role of anxiety on updating in working memory have produced mixed results (for a review see Eysenck, 2007). In addition, researchers have not examined the effect of content-dependent updating in anxious populations. Anxious individuals may be particularly affected by threatening stimuli compared to non-anxious individuals (Egloff & Hock, 2001; Eysenck & Byrne, 1992; Keogh & French 2001; Mogg et al 2000); thus the type of stimuli used in these paradigms should be examined. For this paradigm, we replicated a computerized version of the Operation Span Task (Aospan) created by Unsworth (2006) to assess working memory updating in a group of high and low socially anxious individuals. Stimuli consisted of social threat and neutral word trials. Results suggest that overall the high anxious group had smaller working memory spans, particularly for neutral words. Recall for words that are closely related semantically should be more difficult (Unsworth, 2007). Thus the finding that socially anxious individuals perform worse on neutral words, not social words, is seemingly conflicting with accounts of inefficient cognitive processing in anxiety. However, the increased salience of anxiety-provoking social words may recruit attentional resources needed to successfully overcome working memory deficits. Alternatively, the presence of threatening stimuli may serve to draw resources away from the pool needed to process neutral stimuli, thus essentially serving as distracters.

#96 11:15 am

**Pupillary Response to the Embedded Figures Test in Individuals with Autism Spectrum Disorder**

Mishaela DiNino, Psychology
Ralph-Axel Mueller, Psychology

Background: Previous research has shown that individuals with autism spectrum disorder (ASD) excel at the embedded figures test (EFT), but the manner in which they achieve this superiority has not been thoroughly examined. Research investigating cognitive effort has begun to use eye-tracking technology to measure the pupillary response as means of understanding cognitive workload during a variety of behavioral tasks. The present study utilized percent changes in pupil dilation to determine whether enhanced performance in individuals with ASD is associated with increased or reduced cognitive effort. Objective: To examine pupil response (reflecting cognitive workload) and its association with EFT for both children with ASD and typically developing (TD) children. Method: Participants were 10 high-ability adolescents with ASD and 10 age- and IQ-matched TD individuals. The EFT was composed of 40 test and 30 baseline trials and a complex geometric figure was displayed on each trial. In the test condition a target shape was hidden within a complex figure, while in the control condition the target shape was highlighted. Binocular eye-tracking data were collected for the duration of the experiment. Results: There was significant group by condition interaction for the median reaction time (RT). Individuals with ASD evidenced significantly faster RT in the test condition but equivalent RT in the baseline condition relative to TD individuals. For measures of pupil dilation, there was no main effect of group, or interaction between group and any factor. Conclusions: While individuals with ASD demonstrated accelerated RT in the EFT, there was no difference between ASD and TD group for pupil dilation. This suggests that individuals with ASD and TD individuals perceive the EFT to have the same degree of difficulty, and that superior performance by individuals with ASD may be instead related to differences in early perceptual processes.
vivid or controllable imagery. The current study attempts to overcome some of the shortcomings of previous studies of visual imagery in social anxiety by using a behavioral task of imagery rather than self-report methods. Undergraduate participants high and low in social anxiety first learned the appearance of uppercase block letters superimposed on a 4 x 5 grid and each letter's corresponding lowercase script version. Then participants completed the computerized imagery task. For each trial, a script letter (cue) was presented for 300 ms, followed by a 4 x 5 empty grid with an X probe in one of the cells for 300 ms. Participants were asked to decide whether the block version of the just-cued letter would cover the cell marked with the X if it were superimposed over the grid. Half of each of the X probes fell on or near a segment of the letter typically drawn early in letter-writing and the other half fell on or near a late segment. This paradigm consistently reveals longer latencies to later segments of the letter due to the image generation process. Preliminary results reveal that participants required more time to respond to late than to early probe locations. The results also indicate socially anxious individuals respond faster to both early and late probe locations compared to the controls; however, the difference in response latency between early and late locations is larger for the socially anxious participants. This final result indicates socially anxious individuals are slower to generate images. One possible explanation is that socially anxious individuals have a decreased propensity to generate images of general stimuli, despite their increased usage of self-imagery.

Session A-11
Oral Presentation: Decision Support
Friday, February 29th, 2008, 10:30 am
Location: Chantico

#99 12:00 pm
Behavioral Test of Imagery Ability in Social Anxiety
Amanda Morrison, Psychology
Nader Amir, Psychology
Research suggests distorted self-imagery plays a causal role in excessive social anxiety. Similarly, theorists have hypothesized that anxious individuals may be predisposed to experience more vivid or controllable imagery. The current study attempts to overcome some of the shortcomings of previous studies of visual imagery in social anxiety by using a behavioral task of imagery rather than self-report methods. Undergraduate participants high and low in social anxiety first learned the appearance of uppercase block letters superimposed on a 4 x 5 grid and each letter's corresponding lowercase script version. Then participants completed the computerized imagery task. For each trial, a script letter (cue) was presented for 300 ms, followed by a 4 x 5 empty grid with an X probe in one of the cells for 300 ms. Participants were asked to decide whether the block version of the just-cued letter would cover the cell marked with the X if it were superimposed over the grid. Half of each of the X probes fell on or near a segment of the letter typically drawn early in letter-writing and the other half fell on or near a late segment. This paradigm consistently reveals longer latencies to later segments of the letter due to the image generation process. Preliminary results reveal that participants required more time to respond to late than to early probe locations. The results also indicate socially anxious individuals respond faster to both early and late probe locations compared to the controls; however, the difference in response latency between early and late locations is larger for the socially anxious participants. This final result indicates socially anxious individuals are slower to generate images. One possible explanation is that socially anxious individuals have a decreased propensity to generate images of general stimuli, despite their increased usage of self-imagery.
A STUDENT RESEARCH SYMPOSIUM 2008

#101 10:45 am

Review Essay - The Box Spread and its Implications in International Finance
Jeremy Sanders, Finance
S G Badrinath, Finance

This article reviews recent finance literature in order to first define the box spread in detail, and then examine its implications in international finance. Findings are consistent and demonstrate the high impracticability of successfully employing this options strategy, however, leave questions unanswered regarding how to best identify the existence of such opportunities. Further, nascent international financial markets necessarily lack efficiency and thus might serve as an ideal forum for future research.

#102 11:00 am

A Study of the Drivers of Entrepreneurship among African Refugees
Dena Lewerke, MSBA Entrepreneurship/Management
Martina Musteen, Management

The purpose of this research is to investigate factors that lead to successful business development of refugee entrepreneurs. Specifically, we seek to find out how human and social capital of entrepreneurs facing extreme adversity motivate and enable them to start a successful business venture. Using personal interviews, we have surveyed a sample of 50 entrepreneurs in a refugee camp in Kenya and an Internally Displaced Persons (IDP) camp in Uganda, and plan to interview approximately 50 more Africans with refugee status in the United States. We will use multivariate regression to analyze the data, which will allow us to control for the confounding effects of various factors and thus determine which personal characteristics and assistance measures have impact on their ability to launch and manage a viable business. The number of refugees and IDPs has grown dramatically from 8.4 million in 2006 to more than ten million today (International Medical Corps, 2007). The majority of these individuals find themselves in overcrowded refugee camps with unsanitary conditions and few resources. That is particularly true of refugees and IDPs in Eastern Africa. Despite the extreme adversity and lack of resources, a number of these individuals find a way to survive through micro and small business start-ups. As a result of this research we expect that we will find that business performance, opportunity-based entrepreneurship, need for achievement, and locus of control will be greater for the African refugees residing in the United States than for those residing in camps in Africa.

We also expect to find that a high level of social competence will result in better business outcomes for all groups interviewed.

#103 11:15 am

An Empirical Investigation of Sex-role Stereotypes and Charismatic Leadership
Stephen Vong, Industrial/Organizational Psychology
Mark Ehrhart, Psychology

In the present study, we examined the possible sex-role stereotypes associated with charismatic leadership. A total of 274 students (189 females and 81 males) completed an attribute inventory measuring traditional sex-role stereotypes consistent with past research by Schein (1973, 1975), Heilman, Block, Martell, and Simon (1989), and others. The inventory consisted of eight scales divided by specific attributes used to measure sex-role stereotypes. Participants rated all attributes for one of the following stimulus groups: charismatic leaders, women leaders, men leaders, women in general, and men in general. Results indicated that charismatic leadership was significantly related to women leaders, and the strength of that relationship was higher than it was for any of the other stimulus groups. An analysis of the eight scales found that participants rated women and charismatic leaders higher on their work competence and concern for others compared to all other stimulus groups. Furthermore, charismatic and women leaders received similarly high ratings on their emotional stability and rationality. The implications of these findings as well as the theoretical and empirical research on these issues are discussed.

#104 11:30 pm

Emotional Deviance in Customer Service Employees: Individual Factors and Perceived Job Stress
Taylor Peyton, Psychology
Mark Ehrhart, Psychology

Emotions are an important aspect of work for service employees as they play a critical role during customer interaction. The idea that employees often expend effort to regulate their emotions has been conceptualized in psychological research as the concept of emotional labor. The research that currently exists on emotion regulation has done little to address the negative implications that arise when customer service employees fail to perform emotional labor, but instead perform emotional deviance. It is proposed emotional deviance occurs when employees do not strive for optimal exchanges with customers, and instead violate organizational expectations for emotional displays. Such behavior may lose valuable customers or damage the organization’s image. This study collected and analyzed survey data from 205 undergraduate student participants to investigate which individual

ABSTRACTS
and situational factors predict emotionally deviant behavior. Taking into account emotional labor theory and counterproductive work behavior literature, the following individual variables were explored: negative affect, trait anger and trait anxiety. Situational job stressors included organizational constraints, interpersonal conflict, role ambiguity, role conflict, role overload and subjective stress. Direct correlational analyses evaluated whether job stressors and individual differences were positively related to emotional deviance, and results showed significant positive correlations between emotional deviance and job stress. Hierarchical multiple regression analyses evaluated whether individual differences and job stress variables interact to predict emotional deviance; hypotheses predicted individual tendencies to perform emotional deviance would be exacerbated by increasing levels of perceived job stress. Findings from 10 significant interactions were surprising as they generally contradicted hypotheses, but the consistency in the results offers valuable insight into the nature of the emotional deviance construct as it may occur in the workplace. This study contributes to current literature by enhancing understanding of emotional deviance and by calling attention to it as a detrimental work behavior.

#105 11:45 am

*Exit Polling is Used to Predict the Outcomes of Elections Before and During Election Day*

Adria Van Loan, Statistics
Carole Kennedy, Political Science

Exit Polling is used to predict the outcomes of elections before and during Election Day. In 2004 exit polls done during the presidential election showed John Kerry winning the popular vote by a margin of 3% however the results showed Bush winning by 2.5%. Were the exit polls inaccurate? Mitofsky International and Edison Media Research the two companies responsible for doing the exit polls came to the conclusion that Bush voters were less likely to respond to their question when leaving the polling place. Research done shows this could not be the case and there must be another explanation for the discrepancies in the results.

#106 12:00 am

*A Multinomial-Dirichlet Model for Analysis of Competing Hypotheses*

Jonathan Wilson, Computational Statistics
Kristin Duncan, Mathematics and Statistics

Analysis of Competing Hypotheses (ACH) is a methodology used by analysts in fields such as counterterrorism and business strategy when making decisions under uncertainty. The method identifies a set of potential outcomes (hypotheses) and evaluates these hypotheses with respect to qualitative evidence, resulting in an assessment of which hypotheses are most consistent with the evidence. I extend the current methodology, through Bayesian inference, to incorporate quantitative estimates of the probabilities of the hypotheses as well as measures of uncertainty around these estimates. I further develop the method to allow the analyst to handle the irrelevance of evidence to particular hypotheses, evidence that conflicts with certain hypotheses, and evidence that may be subject to deception. To illustrate, an example is presented involving the potential stadium relocation sites for the San Diego Chargers. Evidence for the potential sites was obtained from the San Diego Union Tribune. Results show the proposed new techniques are relatively simple for analysts to adopt. Improving the methodology provides analysts with better information on which to base decisions involving strategy and resource allocation.

Session A-12
Oral Presentation:
Diversity and Pedagogy in Education
Friday, February 29th, 2008, 10:30 am
Location: Council Chambers

#107 10:30 am

*Bilingual Pre-service Teachers: The Tensions and Support Systems that Influence their Teaching Ideology*

Gustavo Gonzalez, Instructional Leadership for Linguistically and Culturally Diverse Students
Karen Cadiero-Kaplan, Policy Studies in Language and Cross-Cultural Education

Bilingual teacher education credential programs in California prepare bilingual teachers to effectively work with linguistically and culturally diverse backgrounds. Bilingual teachers have a challenging task of working in classrooms where almost half of the students are English learners in a status quo, deficit educational model. The expectations are high to bring their students to meet English proficiency and meet the benchmarks on state mandated tests, although the language policies in place stem from a subtractive model. As students themselves, many of them entered school with their primary language, with the potential to learn English and be fluent bilinguals, but exited school as monolingual English speakers. This researcher will explore (1) why these pre-service bilingual teachers want to become bilingual teachers, (2) what tensions they encountered, (3) what support was available to them, and (4) how it influenced their teaching ideology. The methodological approach selected for this research will consist of a critical narrative analysis of their critical literacy autobiographies, interviews conducted with all the participants, and their teaching ideology statement. This study will be the initial work...
used to begin to demystify the process and the pipeline that a bilingual teacher goes through on their way to becoming a highly qualified bilingual teacher.

#108 10:45 am

Inequitable Achievement: Different Admissions Criteria, Same Predictors of Degree Attainment?

Cynthia Avery, Educational Leadership
Joseph Johnson, Educational Leadership Department

San Diego State University (SDSU) admits freshman under two different admissions criteria. This study examined the intra-institutional gaps in 6-year degree attainment of students admitted under the two different admissions groups. The research focused on the graduation of White, Hispanic and African American students. Specifically, this study examined the predictors of degree attainment for the fall 2001 freshmen cohort. Theoretical models of retention guided this study. The research design includes the use of both descriptive and inferential statistics to examine hypotheses regarding student achievement. Quantitative analysis focused on extant data. Cross-tabulations identified graduation outcomes and binary logistic regression models identified predictors of graduation. Among the most significant or recurring predictors in the models were math aptitude, high school grade point average, living on campus and participation in a one-unit freshman seminar course. A strengths-based qualitative inquiry supplemented the quantitative analysis. Interviews of African American, Hispanic and White students admitted as freshmen in fall 2001 enhanced the study. The participants gained admission to SDSU under the university’s minimum admissions criteria and participated in graduation in spring 2007. The interviews explored students’ perceptions of both institutional and personal factors that supported their persistence to graduation. Common supports identified through the analysis of the qualitative data included parental support, social capital, and personal qualities of self-determination and resilience.

#109 11:00 am

Beyond Equality, Equity and Adequacy: Intra-district Resource Allocations Impact on School Achievement

Oscar Jimenez-Castellanos, Education
Ruben Espinosa, Policy Studies in Language and Cross-Cultural Education

Problem: It is generally assumed by the general public, educators and by policy makers that students within a school district are provided with equal access to educational resources. This assumption may be a result of the abundance of information which documents problems in state and inter-district resource allocations (Serrano v. Priest, 1971; San Antonio Independent School District v. Rodriguez, 1973, Oaks, 1999, Gandara etc. al., 2003, Kozol, 2006, Loeb, Bryk & Hanushek, 2007) while omitting information on intra-district resource allocation. However, the few studies that have examined intra-district resource distributions have suggested that intra-district inequity compounds the state and inter-district inequities that already exist (Espinosa, 1985, Roza & Hill, 2004, EdTrust, 2005). The two primary research questions posed were: (1) How are educational resources allocated among schools within a school district? (2) How do educational resources impact school achievement? Methodology: A transformative sequential mixed method approach (Mertons, 2005) was applied using the following methods (1) an intra-district quantitative analysis, (2) district interviews, (3) district focus group, and (4) a comparative case study approach (Yin, 2002). The district selected for this study is a large, majority Latino, 64%, elementary school district in California. This district also has approximately 40% low-income students and 33% English Language Learners. The intra-district quantitative study was filtered for traditional schools during the 2005-2006 (N=36). In addition, four schools were selected with varying school demographics, fiscal resources and achievement levels for the comparative case study. The comparative case study included principal interviews, school observations and artifact collection. Major Conceptual Findings: 1.Intra-district resource allocation between affluent schools and schools with more Latino, low-income English learner students are inequitable and inadequate. The intra-district inequities are caused by a lack of conceptual understanding, research and district oversight. 2.Educational resources impact school achievement by promoting or hindering the ability to develop a positive school culture and high quality instruction. Summary: The study findings have significant theory, policy and practice implications for K-12 and higher education institutions to improve the educational opportunity to learn and achievement for all students. However, it is clear that a status quo/reform framework will not suffice to provide the necessary educational changes to eliminate the socio-economic, ethnic and language achievement gap. Moreover, significant transformational changes are needed in all three educational resource constructs: (1) fiscal, (2) structural and (3) personnel to assure that all students meet state standards.

#110 11:15 am

Towards an Understanding of Mexican Immigrant Parents in School Communities: Ethnographic Study of Immigrant Parents and their Struggle to Support their Children’s Path to Academic Success

Pablo Ramirez, Education
James Rodriguez, Policy Studies in Language and Cross-Cultural Education
The ethnographic study I am conducting in the San Diego Barrio Logan community is focuses on identifying the current tensions faced by immigrant parents in school communities in terms of educational clarity of American school systems. The barriers that are designed to oppress many immigrant parents are now being challenged by skillful and articulate parents that are strategic in obtaining “new knowledge” from the school community. My ethnographic study has one focus group comprised of 8 immigrant parents with diverse Mexican cultural background and distinct levels of education. I have been studying these parents for the past 6 months. The qualitative methods include surveys, observations, interviews, student narratives, and parent forums. The data suggest that most of the parents that obtain information about a school community still do not receive the necessary support their children need in order to receive an equitable education and this impacts their academic mobility.

#111 11:30 am

**Professional Noticing of Children’s Scientific Thinking**

Victoria Winters, Mathematics and Science Education
Fred Goldberg, Physics/CRMSE-Center for Research in Mathematics & Science Education

In this presentation, I examine how pre-service teachers in an inquiry-based physical science course describe and interpret the scientific thinking of elementary school children. I hypothesized that this skill is correlated with the pre-service teachers’ knowledge of science and beliefs about science and learning (epistemological beliefs). Using the construct of “professional noticing,” I analyzed and coded pre-service teachers’ prompted responses to video of elementary school children. The written responses were evaluated along several scales, including focus of interpretation and support of interpretive claims. This coding led to a quantitative measure of “sophistication of noticing,” which was then analyzed in relation to assessments of two independent variables, “content knowledge” and “epistemological beliefs.” While science content knowledge and epistemological beliefs scores were correlated ($N = 26, r = 0.529, p = 0.005$), neither of these assessments correlated with sophistication of noticing. Additionally, logistic regression analyses were performed on all data and on a subset comprised of only high- and low-sophistication noticers. The models regressed the dependent variable (noticing) on the two independent variables. Neither content knowledge nor epistemological beliefs could predict sophistication of noticing. I conclude by discussing how modified assessment instruments and study design may better investigate the relationship between professional noticing, content knowledge, and epistemological beliefs.

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**Session A-13**

**Oral Presentation: Mechanics and Materials**

**Friday, February 29th, 2008, 10:30 am**

**Location: Presidential Suite**

**#112 10:30 am**

**Soil Mechanics Analysis and Comparison to In-situ Test Methods of Soils Found in Potrero Canyon**

Richard Fernandez, Civil Engineering
Julio Valdes, Civil, Construction and Environmental Engineering

Cone Penetration Test (CPT) data is widely accepted as the best option for subsurface investigation in determining sequence of subsurface strata, groundwater conditions, and mechanical properties of subsurface strata. While the CPT is very useful for geo-environmental purposes, the significance of widely varying data within a substrate is still rather unknown. In analyzing the soil properties of Potrero Canyon, this research project explores the standard CPT test procedures and compares this data to data obtained from standard lab test procedures for soil mechanics analysis; the lab tests include visual description and classification of soils, moisture content, Atterberg limits, hydrometer analysis, and sieve analysis. Future study for this project includes the susceptibility of liquefaction in fine-grained soils and those issues are also explored.

**#113 10:45 am**

**Instability Of Soils, Fines Migration**

Johan Gallay, Civil Engineering
Julio Valdes, Civil, Construction and Environmental Engineering

Abstract: This research proposes to advance the understanding of the internal stability of granular materials. It is aimed to identify and examine emergent micro-mechanisms and the ensuing macro-level response of granular materials subjected to simultaneous seepage and particle crushing. A custom-made one-dimensional transparent compression cell with fluid flow capabilities is used to concurrently load and flush saturated specimens, permitting the inspection of particle-level forces and relevant rates through dimensionless ratios. The intellectual merit of this research is an improved understanding of the mechanisms by which particle crushing and seepage induce variations in permeability, fabric, and gradation. These parameters are important in establishing drained -to- undrained transitions in applications where granular geomaterials are subjected to stresses that can lead to the production of migratory fragments, such as in water- and oil- producing formations and in saturated sediments subjected to dynamic loads.


#114 11:00 am

**Monitoring Grain Breakage with Elastic Wave**

Afrildio Syahrial, Civil Engineering  
Julio Valdes, Civil, Construction and Environmental Engineering

The behavior of soils and other granular materials is controlled by the state of stress. Particle experience three different regimes with increasing stress: elastic, plastic, and clastic. Hertz law applies in the elastic regime: contacts flatten. In the plastic regime, particle yielding marks the onset of permanent deformations. In the clastic regime, particles are crushed and the stiffness of the soil fabric increases due to the increase in coordination. The premise of this research is that such mechanisms can be studied with small-strain wave measurements (i.e., P-waves) because the fabric evolution of the specimen is neither interrupted nor disturbed during any particle scale meso-process. Results indicate that the P-wave velocity is sensitive to material density and stiffness evolution. Hence, it captures the early stages of plastic and clastic yielding.

#115 11:15 am

**In-situ Processing of Titanium Dual Matrix Composites**

Vipulkumar Patel, Mechanical Engineering  
K. B. Morsi, Mechanical Engineering

Although titanium (Ti) alloys possess desirable properties such as specific strength, corrosion resistance and low density, their low specific stiffness and wear resistance have restricted their widespread application. Recently, composite strategies have provided means for overcoming these limitations. In-situ generated titanium boride whiskers (TiBw) are currently recognized as one of the most compatible reinforcements for Ti, making discontinuously reinforced Ti-TiBw composites strong candidates for applications within the automotive, aerospace and defense industries. Although increasing TiBw volume fraction has been shown to improve the specific stiffness and wear resistance of titanium, it is usually on the expense of fracture toughness and ductility especially at high volume fractions of reinforcements where whisker interlocking becomes evident. This research discusses the processing of Ti-TiBw dual matrix composites, which are composite microstructures consisting of TiBw-Ti composite regions separated by a ductile Ti matrix, thus avoiding the continuous interlocking of the TiBw brittle phase across the microstructure. This micro-structural design has never been used for Ti composites. Two high-temperature powder consolidation methods were investigated namely, pressure-less sintering and Current-Activated Pressure Assisted Sintering (CAPAS). Other aspects investigated include the use of different composite particle sizes in addition to different processing temperatures. The effect of processing temperature and particle size on the microstructure and hardness of Ti-TiBw dual matrix composites was also studied, together with a novel simultaneous imaging and modulus mapping technique used to characterize the composites. Results show that pressure-less sintering is not an effective process for complete conversion of reactants to form TiBw or generating high-density products. Full conversion to TiBw was however attained using CAPAS generating the first ever high-density Ti-TiBw dual matrix composites with complete conversion of reactant materials. The work has major implications for titanium composite development, which will ultimately allow the tailorable of the properties of these unique composites.

#116 11:30 am

**Implementation of Continuum Composite Material Model for High Strain Rates**

Pablo Salas Mendez, Applied Mechanics  
Satchi Venkataraman, Aerospace Engineering and Engineering Mechanics

Engineering applications are commonly designed to withstand high loading conditions. For that reason, composite materials are used extensively. Accurately simulating the response of the composite structure under high impact loading requires the implementation of analytical models capable of representing the nonlinear and strain rate dependent behavior of the composite. For high strain rates, work developing constitutive equations that capture the composite material response is still in progress. For applications such as fan containment systems of aircrafts structures, it is of great importance to correctly model the response of the composite subjected to high impacts. For this purpose, implementation of analytical models using finite element methods constitute a powerful tool in the design process. The first objective of the present work is to build a robust analysis capability that can be used to verify and validate the effectiveness of polymer composite models in practical applications involving high impact loading conditions. The polymer matrix and fiber in the composite are modeled as individual constituents. In the model, viscoplastic constitutive equations originally implemented for metals have been modified to account for the effects of hydrostatic effects (which can’t be neglected) and inelastic strains in polymers. The resultant stress in the composite can be obtained by using a mixture theory that averages the individual stresses of the polymer and fiber constituents. In order to facilitate the constitutive model development, experimental testing is being carried on to obtain material properties. The strength properties of the polymer and fiber components are being measured in tension and compression. Once the material properties are obtained, a micromechanical approach will be used to match experimental response of a ballistic test and build a continuum model (computationally less expensive) for design use. Critical failure modes and mesh sensitivity of the model will also be investigated.
### #117 11:45 am

**Uniaxial Freeze Drying for Aligned Pore Structure in Dye Sensitized Solar Cells**

Evan Khaleghi, Mechanical Engineering  
Eugene Olevsky, Mechanical Engineering

In dye-sensitized solar cells (DSSCs), titanium dioxide plays a crucial role. Its main structural function is to provide a substrate for organic dye attachment, and to provide a barrier between the charge transfer electrolyte and the conducting glass anode. Electrochemically, the titanium dioxide semiconductor accepts electrons injected by the organic dye, and transfers them to the conducting glass anode, with a negligible loss of energy. Other semiconductors of similar nature (ZnO, etc.) can be used, but titanium dioxide is the focus of most current research. Many methods are used to produce the titanium dioxide surface for dye-sensitized solar cells, including electrophoretic deposition (EPD), screen printing, and doctor blade deposition. Each of the methods has its advantages and disadvantages, but none come close to the perfect surface morphology. The ideal morphology has a large surface area for dye attachment, but also does not impede electron flow to the conduction layer. Here we describe a technique for augmenting these methods, using freeze drying, to produce a superior surface morphology for DSSCs, that increases surface area for dye attachment. Freeze drying has been used in other areas (mainly food preparation), but only relatively recently in materials research.

### #118 12:00 pm

**Meso-scale Monte Carlo Sintering Simulation with Anisotropic Grain Growth**

Gordon Brown, Computational Sciences  
Richard Levine, Mathematics and Statistics

Although Monte Carlo (MC) simulations are widely used for understanding the microstructural evolution of sintering bodies, the models currently in use do not accommodate anisotropic material grain growth. A two-dimensional algorithm to simulate the evolution of granular structure with anisotropic materials using a Potts MC model which incorporates the sintering mechanisms of grain growth, pore migration and vacancy annihilation is presented. Limitations of this algorithm imposed by the underlying lattice structure are identified and solutions are proposed, implemented and tested. Even though this ability to incorporate anisotropic grain growth in our meso-scale modeling does not provide a significant direct effect on the macroscopic properties or deformation of sintered objects, it can allow us to investigate the granular development under several different situations to better understand some of the observed phenomena like patternning in sintered materials.

### #119 10:30 am

**Engineering of a Recombinant Vesicular Stomatitis Virus Encoding a Fluorescent Polymerase**

John Ruedas, Cell and Molecular Biology  
Jacques Perrault, Biology

Vesicular stomatitis virus (VSV) is the best characterized virus of the Order Mononegavirales, which includes many significant pathogens such as the Rabies, Measles, and Ebola viruses. Much of what is known about molecular mechanisms of Mononegavirales has been derived through the direct study of VSV. Just as cellular transcripts require methylated caps at their 5' ends for efficient translation of their encoded proteins, VSV transcripts, which are synthesized in the cytoplasm, also comprise this feature. The virus-encoded polymerase (L protein) carries out capping and methylation of its own transcripts by a mechanism that differs from the host cell, which offers a promising target for antiviral agents against the Mononegavirales. However, critical details about VSV methylation and other polymerase functions remain elusive, hindering the field. We have taken a unique approach to gain insight into the VSV methylation reaction. Using reverse genetics, we have engineered a novel recombinant virus, termed L+EGFPVSV, with a drastic modification to its polymerase by introducing the enhanced green fluorescent protein (EGFP) directly upstream of the methylation domain. Our data indicate that L+EGFPVSV transcripts are methylated as efficiently as wild-type transcripts in vivo. This surprising outcome provides fresh insight into the structural tolerance of the VSV polymerase as well as provides a novel tool for the tracking and localization of the viral polymerase in infected cells. Of the many intriguing characteristics of this virus, the most striking is its extreme temperature-sensitivity with titers approaching wild type levels at 33°C but a 100-1000 fold lower, at 37°C. We have shown this attribute to be a direct result of the altered polymerase, which exhibits a significant reduction in function at 37°C. We envisage L+EGFPVSV to be a powerful tool in understanding VSV polymerase functions, including cap methylation, and plan to engineer a battery of polymerase-insertion mutants to provide additional insights.
**#120 10:45 am**  
**Chromosomal Rearrangements in Salmonella enterica vs. Typhi Strains Isolated from Human Carriers**  
Dave Matthews, Cell and Molecular Biology  
Stanley Maloy, College of Sciences

Most of the ~2500 serovars of Salmonella enterica have a broad host range and usually cause a self-resolving gastroenteritis. A few serovars however are host-specific and can only infect one or closely related species. Host-specific serovars frequently cause a systemic disease in their hosts, for instance typhoid fever is caused by the human-specific Typhi serovar. Compared to the conserved chromosomal arrangement found in the broad host range serovars, strains of host-specific serovars almost always have chromosomal rearrangements due to homologous recombination between the seven rrn operons on the Salmonella chromosome. One hypothesis to explain these rearrangements suggests that aspects of the host-specific serovars’ lifestyle, such as the ability to establish chronic long-term infections, either induces these rearrangements or allows them to be tolerated. In this study we examined the chromosomal arrangements of eleven Typhi strains isolated from fecal samples taken between 1983 and 1999 from four asymptomatic female carriers to determine if rearrangements could be detected over time. Chromosomal DNA from these strains was isolated and used in a polymerase chain reaction (PCR)-based assay that utilized a set of primers specific to the flanking regions of each rrn operon. Depending on which reactions yielded a product as determined by agarose gel electrophoresis, the chromosomal arrangement of that strain was then ascertained. The results of the PCR analysis indicated that strains isolated from the same patient but at different time points almost always had different arrangements. Eight of the strains tested had unique arrangements, with five strains having arrangements not previously observed in Salmonella. Analysis of six isolates from each strain indicated that rearrangements were not occurring during storage or culturing. These results suggest that the observed chromosomal rearrangements occurred in vivo over time, possibly due to the long-term interaction between the Typhi bacteria and their human hosts.

**#121 11:00 am**  
**How Much Replication? A Molecular Time Clock Approach to Determine the Amount of Viral Genome Replication In Vivo**  
Scott Robinson, Cell and Molecular Biology  
Ralph Feuer, Biology

Coxsackieviruses infection in humans may cause serious disease, including pancreatitis, meningitis, and myocarditis. Acute coxsackievirus B3 (CVB3) infection is characterized by elevated viral titers, cytopathic effects, and the induction of apoptosis in target organs. The persistent phase of infection in the heart is defined by long-term retention of viral RNA in the absence of infectious virus. We utilized recombinant coxsackievirus expressing the enhanced green fluorescence protein (eGFP-CVB3). We hypothesized that the instability of the GFP insert may reflect the number of times the viral genome replicates in the heart and help to reveal the mechanism of persistence in the heart. Our recombinant coxsackievirus expresses eGFP for up to passage five in tissue culture, during which the foreign insert is gradually deleted from the viral genome in a reproducible manner. BALB/c mice harbor viral RNA in susceptible tissues during the persistent stage of infection in the absence of detectable levels of infectious virus. Conversely, BcKO mice suffer from chronic infection, in which infectious virus is present for extended periods of time. Quantitative nested RT-PCR was used to measure the eGFP “decay rate” from the recombinant viral genome in vivo in both contrasting mouse models. The accuracy of our nested PCR amplification method was determined by amplifying mixtures known quantities of plasmid DNA representing both full-length and deleted recombinant virus. Our initial results suggest that BALB/c mice show an accelerated eGFP “decay rate” as opposed to BcKO mice, perhaps reflecting the need for CVB3 to target B cells for efficient virus spread within the host during acute infection. In conclusion, our molecular time clock approach will help us to determine viral replication rates during the persistence phase of CVB3 infection. These studies will assist in predicting the benefits of antiviral therapy as these treatments are typically only helpful during active viral replication.

**#122 11:15 am**  
**Ascidians as a Novel Invertebrate Chordate Model for Alzheimer’s Disease**  
Michael Virata, Cell and Molecular Biology  
Robert Zeller, Biology

Research involving Alzheimer’s Disease (AD) pathogenesis has involved the use of model systems to reproduce aspects of AD histopathology, particularly β-amyloid-containing plaques. A variety of invertebrate model systems (i.e. Drosophila and C. elegans) have been exploited to study the disease process but questions remain as to whether lower invertebrate species can provide a direct comparison in understanding human neurological diseases. We believe that the ascidian, Ciona intestinalis, may provide an ideal model system to study the mechanisms coordinating AD due to their close phylogeny, simplified chordate nervous system, rapid development, and ease of experimental manipulation. Genetic studies suggest that excess amyloid-β1-42 (βα1-42) production is the first step in AD pathogenesis. In humans, βα1-42 is generated by cleavage of the amyloid precursor protein (APP) by α- and β-
**Abstracts**

Problem: The absence of a functional $\beta_\text{APP}_{1-42}$ sequence and lack of equivalent $\gamma$-secretases in current invertebrate AD models have limited efforts in studying APP processing in vivo. However, bioinformatic analyses revealed that the ascidian genome contains all the putative secretases implicated in processing. Our studies have shown that ectopically expressed human APP (APP695) is cleaved to generate $\beta\text{APP}_{1-42}$ peptides that subsequently aggregate to form thioflavin S-reactive plaques within 24 hours post-fertilization. Ectopic expression of an APP695 mutant linked to early-onset, familial AD causes a significant increase in plaque formation compared to wild-type. Furthermore, $\beta\text{APP}_{1-42}$-expressing larvae fail to respond appropriately to gravity suggesting that $\beta\text{APP}_{1-42}$ misexpression in the ascidian nervous system causes changes in the settling behavior of the tadpole larvae. Our preliminary results suggest that ascidians may serve as a rapid drug screening platform for candidate therapeutic compounds of AD. More importantly, their close phylogenetic relationship with vertebrates suggests that they are a superior invertebrate model that may bring us closer to finding improved treatments or potential cures for neurological diseases including AD.

**Session A-15**

**Oral Presentation: Gender and Status**

Friday, February 29th, 2008, 10:30 am

Location: Quetzalcoatl B

**#123 10:30 am**

**Hetaeras: Beauty, Brains, and Female Independence in Ancient Greece**

Jordan Stockberger, Political Science

Elizabeth Pollard, History

Problem: The word “hetaera” can be translated from Greek to mean “companion to men” and describes prostitutes of high status in the fifth through the first century BCE. This paper argues that hetaeras exercised female agency. Agency is proved by examining the distinction between the terms hetaera and porne, which connotes a brothel worker; and by analyzing hetaeras’ dominance in conversation with men, their control over their bodies and sexuality, their independence and influence in the public sphere, and their later pursuits. Methods: In order to prove the agency of hetaeras, this paper undertakes close textual analysis using a feminist hermeneutic. The feminist hermeneutic is required because such an approach has seldom been used on this particular topic, even by modern female classicists. The main sources analyzed are Athenaeus’ Book 13 of his Deipnosophists, Lucian’s Dialogues of Courtesans, Xenophon’s Memorabilia, Demosthenes’ Speeches, Pausinias’ Description of Greece, Herodotus’ Histories, and Plutarch’s Moralia. In addition to the textual analysis, an art historical approach is used to interpret numerous artifacts involving hetaeras. Results: The close, textual analysis with a feminist lens yields a rich picture of hetaeras’ lives and interactions from Athenaeus’ and Lucian’s works. Herodotus’, Plutarch’s, and Pausinias’ works provide documentation for numerous hetaeras’ public monuments and benefaction, which has often been overlooked by scholars. Xenophon’s and Demosthenes’ works records the aspects of hetaeras’ luxurious lifestyles, which proves these women were financially independent. Conclusion: The ancient evidence concerning hetaeras clearly demonstrates that these women, who need to be distinguished from their lower class counterparts, porne, possessed clear agency. The hetaeras of ancient Greece controlled their own bodies, they established themselves as skillful and at times dominant speakers, they wielded independence and influence in the public sphere, and they passed on their trade, and therefore female agency, to a younger generation of girls.

**#124 10:45 am**

**Political Autonomy or Marriage?: Young Oaxaquenas’ Perceptions of Education, Employment and Motherhood**

Nidia Merino, Anthropology

Ramona Perez, Anthropology/ Latin American Studies

In recent decades, the women of Santa Maria Atzompa have begun to question long held traditions of early marriage and motherhood as they have expanded their roles as economic providers through tourism and craft production. Within the context of ongoing economic, political and cultural changes in their community and the larger Mexican state of Oaxaca, this research examines women’s reconceptualization of marriage, motherhood and the overall value of women. The research further investigates how their expanded roles have altered their relationships with their mother in-laws and husbands within the household structure. The mother/daughter in-law relationship in Mexico has traditionally been one based on unequal power relations where the incoming daughter in-law enters her husband’s family in a highly subordinate position. Using ethnographic and qualitative research methods, recent mother in-laws, recently married women, and unmarried women between the ages of 18 and 25 were interviewed to document their perceptions about marriage, motherhood, education and work.

**#125 11:00 am**

**Opening Space and Demanding a Place: Zapatista Women and their Vital Role in the Zapatista Movement**

Michelle Lenoue, Latin American Studies

Ramona Perez, Anthropology/ Latin American Studies

In Chiapas, the Zapatistas continue to struggle for justice,
democracy, and autonomy thirteen years after their initial armed uprising. Alongside their compañeros, Zapatista women also walk the path of resistance and are an integral part of the larger movement for justice. Racism, gender oppression, violence, and economic hardship are their daily realities in the home, community and within the Mexican state. This paper highlights the advancements that the indigenous women and men in Zapatista territory have made since 1994. It also addresses the setbacks and struggles still present for women (and men) in the Zapatista movement.

#126 11:15 am
No Mirrors No Makeup, No Men, No Problem?
A Rhetorical Analysis of Curves Strategies for Membership
Brandis DeZon, Communication
Valerie Renegar, Communication
Given the burgeoning locations and hefty profits of Curves as a franchise, it is important to look at the influence that the all-women gym chain has over women as consumers. For this rhetorical analysis, the website of www.curves.com, and two thirty second commercials from the site were analyzed. Using feminist criticism as a lens to study women’s obligation to and self objectification of body image, the overriding research endeavor of the study was to illuminate the strategies Curves utilizes in order to maintain strong membership rates. While applying the concepts of an idealized woman’s world, postfeminist consumer strategies, and self objectification, the unofficial motto of Curves “no mirrors, no makeup, no men” were the vehicles for discovery. Extensive research concluded that the strategies Curves utilized in their online advertisement campaign sent paradoxical empowerment messages to women. While advertisements urged women to exercise in order to achieve positive health outcomes, the images displayed on the Curves website were overwhelmingly associated with the female body as an easily manipulated, marketable object. This rhetorical criticism concurrently asserts that many of the reasons why women join an all-women gym, more specifically social physique and self presentation anxieties are not alleviated in single gendered exercise settings.

#127 1:00-2:15 pm
Exploring the Influences of Different Levels of Support on Safety Training Climate
William Huynh, Applied Psychology
Lisa Kath, Psychology
Recent studies estimate the cost of workplace accidents to organizations upwards of 48 billion dollars. Previous research indicates safety training climate is an important factor in the transfer of safety training to the work environment, increasing the effectiveness of training programs. Current research posits the question: How should safety training climate be measured and what factors make up this construct? The current study examines these questions and explores some factors of safety training climate. To do this, data was collected from 965 employees of a grocery store chain from the Northeastern United States. Employees were surveyed on their perceptions of safety training climate support at various organizational levels (i.e. organizational, manager, job). The data was analyzed using confirmatory factor analysis conducted to test different measurement models utilizing various factor models. The results found support for the three-factor model. This study contributes to previous research by examining how support for general training transfer climate may function differently in the context of safety training context. The results also suggest that safety training climate is fostered by support from the organization, from the managers, and from the job itself. Organizations should take all of these factors when applying or designing safety training programs because these factors can influence the effectiveness of the safety training program and the outcomes associated with it.

#128 1:00-2:15 pm
Organizational Support and Stress: The Mediating Role of Helping Behaviors
Lindsay Palmer, Psychology
Mark Ehrhart, Psychology
Most past research on the effects of social support on occupational stress has focused on the benefits of social support for reducing stress. However, more recently there has been a focus on what is called “negative support,” a form of social support that may actually increase stress when performed in certain contexts. Specifically three types of negative support have been proposed: support that is unwanted, support that draws attention to how stressful the workplace is, and support that makes the target feel inadequate. These types of support have been shown to have a negative relationship with occupational stress. Building on these findings, the purpose of this study was to examine the possible mediating effects of helping behavior on the relationship between negative social support and stress. It was expected that there would be a positive relationship between social support and helping behavior based on social exchange theory and the norm of reciprocity. Furthermore, a positive relationship between helping behavior and occupational stress was expected because helping increases the workload of employees, subsequently leading to more stress. In addition to the three types of negative support, this study examined the role of two more traditional types of support, perceived coworker support and perceived supervisor support. Several indicators of stress were also examined, including overall stress, physical symptoms, role overload, and emotional exhaustion. Preliminary data has been collected from
The Perceived Risk of the Workplace
Ruben Ayala, Psychology
Lisa Kath, Psychology

Research indicates safety in organizations is an important topic that affects both workers' health and organization's profits. A recent survey estimated workplace accidents cost organizations about $48.6 billion per year. One important factor that can influence employees' behavior is their perceptions of risks inherent in their physical work environment. The current research examines potential sources of differences in employees' perceptions of risk in their workplace. Nine hundred and forty-three employees from a grocery store chain in the Northeast United States were surveyed about their health and safety in the workplace. We found part-time employees were less likely than full-time employees to perceive their workplace as risky. We hypothesized that employees' age and/or job tenure might be responsible for these differences in the perception of risks in their workplace. Yet, our results suggested that employees' age and tenure did not account for much of the difference between perceptions of part- and full-time employees, implying that employees can accurately perceive risks in their environments, even when accounting for youth and inexperience. Instead, it appears that the part-time/full-time differences in perceptions are attributable to their different distributions across a variety of job types, some of which do carry more risk than others. Implications for the study suggest training efforts should explore beyond perceiving risks and extend to procedures and prevention.

#130 1:00-2:15 pm
The Mediating Role of Job Satisfaction in the Job Stress-Intent to Quit Relationship: A Study of Grocery Store Employees
Ryan Robinson, Psychology
Lisa Kath, Psychology

The Food Marketing Institute estimates that employee turnover costs grocers a loss of $5.8 billion dollars annually. Turnover is very costly for companies, so how do we help grocery stores retain their employees? We decided to look at what predicts turnover, and we focused on stress as an important predictor. Job stress is expected to be positively correlated with intent to quit one's job. We hypothesized that the effects of stress would work through job satisfaction, such that job satisfaction would mediate the relationships between stress and intent to quit. For example, if an employee is experiencing high stress, he/she is likely to experience lower job satisfaction, which would then be related to higher intentions to quit. We analyzed archival data from a health and safety survey of employees at a medium-sized grocery store chain in the northeast. Of the 1,995 employees of various non-supervisory positions who were randomly sampled to participate, 54% responded. After data cleaning, the working sample was 950. The sample included over 60% females and over 80% part-time workers. We tested the mediation using the Baron and Kenny procedure (1986) and found that the results indicated that job satisfaction partially mediates the relationship between stress and intent to quit. We conclude that stress predicts intent to quit in part through its relationship with job satisfaction. What this means is that retention interventions aimed at job satisfaction are likely to help stressed workers, but that retention interventions aimed at stress itself may be even more effective. Future research can examine other mediation pathways between stress and intentions to quit, as well as explicit tests of retention interventions.

#131 1:00-2:15 pm
The Influence of Environmental Factors on Individual Safety Motivation
Ryan Mills, Psychology
Lisa Kath, Psychology

Workplace accidents cost companies in the U.S. billions of dollars each year. An important factor in preventing workplace accidents is an employee's personal motivation to engage in safe behavior. We were interested in what factors in the employee's workplace environment influences his or her motivation to engage in safe behavior. Some of these workplace environment factors included organization safety climate, store safety climate, department safety climate, safety peer pressure, and tenure with the organization. Survey data was collected from 965 workers employed at a regional supermarket chain in the northeastern United States. Hierarchical multiple regression was used to analyze factors from a variety of levels within the organization (i.e., organization, store, department, job, and individual). Results showed there was no significance for variables at the organization-level or store-level. At the department level, however, safety climate and safety peer pressure were significant predictors of safety motivation. In addition, at the job-level, perceived safety of the physical work environment and the extent to which job demands conflict with safety were significant. At the individual-level, only age was significant, with older employees having higher safety motivation. These results suggest that to increase individual safety motivation, organizations should primarily focus on department and job-
level factors in creating and enhancing safety climate. Replication of the current study in another industry is necessary to determine whether the current findings are specific to this industry and/or organization.

**#132 1:00-2:15 pm**

**An Evaluation of Employment Interview Preparation Tactics and Interview Performance**

Tressa Schultze, Psychology  
Karen Ehnhart, Management

Research on employment interview preparation has shown that increased utilization of interview preparation tactics is related to higher performance in structured employment interviews. The present study examined the relationship between interview performance and two types of interview preparation: self-initiated interview preparation behaviors and participation in an interview tutorial session. Furthermore, we investigated the relationship between belief in tests and interview performance. We hypothesized that both voluntary participation in an interview tutorial session and self-initiated preparation tactics would be significantly positively related to interview performance. We also hypothesized that the expected significant relationship between belief in tests and interview performance would be partially mediated by interview preparation. A total of 215 applicants for promotion at police and fire departments of a large city completed a survey on their self-initiated interview preparation tactics (i.e., managing study time, using materials, advice from others, studying with others) and belief in tests. Voluntary participation in an interview tutorial session was determined through sign-up sheets at each session, and structured interview performance was scored by a trained four-member panel. Consistent with expectations, self-initiated interview preparation tactics were significantly positively related to tutorial participation and interview performance. Moreover, belief in tests was significantly positively related to both self-initiated interview preparation and interview performance. Evidence for the mediating role of self-initiated interview preparation in the positive relationship between belief in tests and interview performance was found. However, results indicated no significant relationship for participation in tutorial session with interview performance. Findings are interpreted and implications are discussed.

**#133 1:00-2:15 pm**

**Neuropsychological and Behavioral Performance in Children with Sleep Disordered Breathing**

Norma Herrera, Psychology  
Claire Murphy, Psychology

Objective: Sleep disordered breathing (SDB) ranges from primary snoring to obstructive sleep apnea (OSA). OSA affects 1-3% of children, with up to 10% being primary snorers, and is associated with significant morbidity. SDB has serious sequelae in adults; however, few studies have examined SDB morbidity in children. One sequela suggested in the pediatric SDB literature is a neuropsychological deficit. Other potential negative sequelae in children are deficits in neuropsychological functioning. Furthermore, the relationship between SDB and olfaction has not been investigated in children. Participants/Methods: The present study examined the effects of SDB on neuropsychological, neuropsychological, and olfactory function before and after surgical intervention for children with SDB. The surgical patients included 26 male and 16 female children. Age and gender match controls were recruited from the surrounding community. Children 4-12 years of age were tested using standardized neurobehavioral, neuropsychological, and psychophysical tests. Surgical and control subjects underwent a multi-channel home sleep test the night of their testing session. Results: Analysis of variance, using repeated measures, revealed significant neurobehavioral differences between the SDB and control groups. Trends toward poorer performance for the surgical groups were detected when compared to the control group on neuropsychological indices, though in this sample size the effects were not statistically significant. Conclusions: Thus, the findings from the present study suggest that further investigation of neuropsychological deficits in pediatric SDB patients is warranted.

**#134 1:00-2:15 pm**

**Emotional Memory for Faces and Words in Healthy Younger Adults**

Shea Gluhm, Psychology  
Paul Gilbert, Psychology

Prior studies suggest that memory for highly emotional stimuli is enhanced compared to neutral stimuli. In young adults, studies have found that recall memory for negative stimuli is better than positive stimuli. However, the effects of emotion on recognition memory is still highly debatable. The present study examined recognition memory and recall for neutral, positive, or negative facial expressions and words in healthy young adults. A total of 20 participants were given computerized memory tests comprised of face or word stimuli. The participants were counterbalanced throughout the study. In the study phase, the participant rated the intensity of the word or face on a seven point likert scale. Word
recall was assessed directly after the study phase for words. The participant was asked to orally list all the words remembered from the study phase. In the recognition phase, the participant was presented with a word or face and was asked to indicate if it was present earlier in the study phase. For recall, negative words were recalled better than neutral words, p < .01. However, there was no significance found for positive words. In recognition memory, positive faces were correctly recognized more for the neutral faces, p < .03, and negative faces, p < .01. No significance was found for positive, negative, or neutral words. Therefore, recall memory supported prior research in showing an emotional enhancement for negative words. Recognition memory showed an emotional enhancement for positive faces, but not for words. This research was supported by SDSU University Grants Program.

#135 1:00-2:15 pm

Temporal Order Memory Deficits in Presymptomatic Gene Carriers for Huntington’s Disease

Brienne Bartlett, Psychology
Paul Gilbert, Psychology

Studies suggest that the frontal lobes may be important for accurate temporal order memory. Since the frontal-striatal loop is affected very early in the course of Huntington’s Disease (HD), temporal order memory may be particularly sensitive to neuropathological dysfunction in presymptomatic HD and may serve as a powerful tool for the early detection of cognitive changes in preclinical stages of this disorder. The participant group consisted of presymptomatic gene carriers less than 10 years away from estimated onset of HD, gene carriers more than 10 years away from estimated onset of HD, and normal controls. Participants were administered a visuospatial temporal order memory task on a computerized radial 8-arm maze. On the study phase, the participant was shown a random sequence of circles presented one at a time at the end of each of the eight arms. On the choice phase, the participant was presented with a circle at the end of two of the study phase arms and was asked to choose the circle that came earlier in the sequence. Parametric manipulations of the temporal metric were carried out by systematically changing the temporal separation lag between the two circles in the choice phase. Temporal order memory was impaired in gene carriers less than 10 years to HD onset relative to gene carriers more than 10 years to HD onset and normal controls; however, performance on the temporal order task increased as a function of temporal separation lag. There were no significant differences between gene carriers more than 10 years from onset and normal controls on the temporal order task. These results suggest that temporal order memory impairment is detectable in gene carriers less than ten years away from onset of HD.

#136 1:00-2:15 pm

Reduced Orosensory-mediated Alcohol Avoidance in Mice Deficient for Transient Receptor Potential Channel Vanilloid Receptor 1 (TRPV1)

Norma Castro, Psychology
Susan Brasser, Psychology

Ethanol is an oral trigeminal stimulant, producing concentration-dependent activation of peripheral trigeminal nerve fibers and central neurons in the brain stem trigeminal subnucleus caudalis (Carstens et al., 1998; Danilova and Hellekant, 2002). Ethanol’s effects on the trigeminal system may be mediated in part by its interaction with the TRPV1 receptor channel (Trevisani et al., 2002), which is localized heavily on sensory fibers innervating the oral cavity (Ishida et al., 2002). The importance of this receptor in orally-mediated avoidance responses to ethanol is presently unknown. Here, we compared orosensory responding to ethanol in TRPV1 deficient and C57BL6 wild-type mice in a brief access exposure paradigm that isolates orosensory influences by measuring immediate licking responses to small stimulus volumes. TRPV1-/- and control mice were tested for short-term lick responses to each of six concentrations of ethanol (3, 5, 10, 15, 25 and 40%), capsaicin (0.003, 0.01, 0.03, 0.1, 0.3 and 1 mM), sucrose (0.003, 0.01, 0.03, 0.1, 0.3 and 1 M), and quinine (0.01, 0.03, 0.1, 0.3, 1 and 3 mM) and psychophysical concentration-response functions were generated for each genotype for each stimulus. TRPV1 knockout mice displayed moderately reduced avoidance responses to ethanol relative to wild-type controls regardless of concentration, while orosensory sensitivity to capsaicin was abolished in knockouts. Sucrose and quinine responses were unaffected by the absence of the TRPV1 receptor. These data indicate that the TRPV1 channel plays a role in orosensory-mediated ethanol avoidance, but that other receptor mechanisms must also contribute to aversive oral responses to alcohol. This research was supported by NIH AA015741-01

#137 1:00-2:15 pm

Postnatal Choline Supplementation Reduces the Severity of Working Memory Deficits in Rats Exposed to Alcohol during Development

Ronald Schneider, Psychology
Jennifer Thomas, Psychology

Prenatal alcohol exposure can adversely influence the development of the fetus, leading to a range of physical, neuropathological and behavioral alterations. Given that women continue to consume alcohol during pregnancy, there is a need to identify effective treatments to reduce the severity of fetal alcohol spectrum disorders (FASD). We have previously shown that pre- and/or early postnatal choline supplementation can attenuate ethanol’s adverse effects on learning and memory, as well as activity...
level. However, it is not known if choline administered later in life, during late adolescence or early adulthood, would have similar beneficial effects. Sprague-Dawley rats were exposed to binge-like alcohol (6.0 g/kg/day) via intubation from postnatal days (PD) 4-9, a period of brain development that is equivalent to the human third trimester. Sham intubated and non-intubated controls were included. On PD 40-60, a period of development equivalent to adolescence/young adulthood, subjects were treated with 100 mg/kg/day choline or saline vehicle via sc injection. Beginning on PD 65, spatial learning was assessed with the Morris water maze and beginning on PD 84, subjects were trained on a working memory version of the water maze. Ethanol exposure significantly impaired performance on both the spatial learning and working memory versions of the Morris water maze. Choline administration did not significantly improve performance of ethanol-treated subjects on the spatial learning version of the Morris maze, but it did significantly improve performance on the working memory version. In fact, ethanol-exposed subjects treated with choline performed at control levels on the working memory task. These data suggest that choline supplementation may effectively mitigate some of ethanol’s effects on cognitive performance, even when administered later in life. These data have important implications for the treatment of individuals exposed to prenatal alcohol exposure. Supported by AA12446.

#138 1:00-2:15 pm
Citalopram Augmentation of Antipsychotic Medication and Level of Functioning Among Middle Aged and Older Persons with Schizophrenia or Schizoaffective Disorder and Subsyndromal Depression
Ellen Solorzano, Social Work
Sally Mathiesen, Social Work

Background: Middle aged and older patients with schizophrenia often suffer from depressive symptoms which interfere with everyday functioning and quality of life. Yet little is known about treatment effects of antidepressant medications on functioning and well-being in this population. This study examines the relationships between: 1) improvement in everyday functioning and quality of life in patients treated with citalopram augmentation compared to placebo augmentation, 2) improvement in depressive symptoms and changes in everyday functioning and 3) cognitive capacity at baseline and subsequent functional improvement. Methods: This study was a secondary analysis of a 2-site, 12-week, randomized, double blind, placebo controlled trial which examined the effect of citalopram augmentation of antipsychotic medication in 198 middle aged and older persons with schizophrenia or schizoaffective disorder and subsyndromal depression. Results: This study found no relationship between functional capacity at endpoint and treatment group after 12 weeks of treatment; however subjects who received citalopram had significantly improved subjective well being in comparison to those who received placebo after 12 weeks of treatment. Improvement in depressive symptoms did not correlate with improvement in everyday functioning. Subjects with worse cognitive functioning at baseline experienced the greater improvement in functioning with citalopram treatment. Conclusions: Baseline cognitive status may moderate antidepressant treatments effects on functional capacity. The knowledge gained in this study can help social workers in deciding which clients would be best served by antidepressant augmentation of antipsychotic medication. It is also useful information in targeting psychoeducation, the development of client treatment plans, and advocacy on both micro and macro levels.

#139 1:00-2:15 pm
Pattern Separation in Older Adults
Chelsea Toner, Psychology
Paul Gilbert, Psychology

Pattern separation, a process where overlapping neural representations are differentiated, is associated with functioning of the dentate gyrus (DG) and CA3 subfields of the hippocampus. It has been found that rats with lesions in the DG are impaired on tasks requiring pattern separation. A study involving amnesic humans, with damage limited in the hippocampus demonstrated that these individuals too showed deficits in pattern separation. A functional magnetic resonance imaging study has revealed that various subregions of the human hippocampus support pattern separation. One of the first regions of the brain shown to be affected by aging is the hippocampus; however, no studies have examined age-related changes in pattern separation. The current study examines the ability of older adults and young adults to perform a continuous recognition memory tasks for visual objects. Some of the objects, called lures, were very similar to other objects, which acted to increase interference and the need for pattern separation. Pictures of everyday objects were shown one at a time on a computer screen. Participants were asked to indicate one of three possibilities: 1) whether they had seen the picture during the task before, 2) whether it was a new object they had not seen during this task, or 3) whether it was an object similar to one seen previously during the task (a lure). Older adults showed impairments compared to young adults and were more likely to incorrectly identify lures as exact replicas of objects they had seen previously. The performance of the older adults suggests that pattern separation processes are less efficient relative to the younger adults. This finding supports the hypothesis that healthy aging results in degeneration in brain regions shown to be critical for pattern separation.
#140  1:00-2:15 pm  
**Age-related Changes in Conditioned Flavor Preference in Rats**
Adam Renteria, Psychology  
Paul Gilbert, Psychology  

Age-related changes have been documented in regions of the brain shown to process reward information. However, few studies have examined the effects of aging on associative memory for reward. The present study tested 7- and 24-month-old rats on a conditioned flavor preference task. Half of the rats in each age group received an unsweetened grape-flavored solution (CS-) on odd-numbered days and a sweetened cherry-flavored solution (CS+) on even-numbered days. The remaining rats in each age group received a sweetened grape-flavored solution (CS+) on odd-numbered days and an unsweetened cherry-flavored solution (CS-) on even-numbered days. During the acquisition phase of testing, the designated solution (CS+ or CS-) was presented to each rat for 15min daily across six consecutive days. On the preference phase, each rat received unsweetened cherry and unsweetened grape-flavored solutions simultaneously for 15min daily across four consecutive days. The 7-month-old rats showed a significant preference for the flavor that was previously sweetened during the acquisition phase (CS+) compared to the previously unsweetened solution (CS-) when the two unsweetened solutions were presented simultaneously during the preference phase of testing. In contrast, the 24-month-old rats did not show a preference and consumed roughly equal amounts of the previously sweetened (CS+) and unsweetened (CS-) solutions. Thus, the data suggest that the ability to form flavor-reward associations declines with increasing age, resulting in impaired conditioned flavor preference.

#141  1:00-2:15 pm  
**Effects of Normal Aging on Temporal Order Memory for Sequences**
Tanya Diaz, Psychology  
Paul Gilbert, Psychology

Episodic memory has been found to be impaired in aging adults. A specific component of episodic memory that has been shown to be particularly sensitive to aging is temporal order memory. Research has found that the temporal and frontal lobes are affected as a result of the normal aging process. These regions, specifically the hippocampus and the prefrontal cortex, also are involved in temporal order and sequence memory. Therefore, temporal sequence tasks may be helpful for the early detection of cognitive dysfunction. The present study compared healthy young and older adults on a visuospatial temporal order memory task involving parametric manipulations of the temporal metric. Temporal order memory was tested using a computerized radial 8-arm maze presented on a computer screen. During the sample phase, a circle appeared at the end of each arm one at a time in a random sequence. Followed by a choice phase, in which two circles were presented simultaneously in two different arms of the maze. Participants had to choose which circle appeared earliest in the sample phase sequence. Choice phase circles were presented randomly as a function of 0, 2, 4, or 6 temporal separation lags. Temporal separation lags represent the number of circles that occurred during the sample phase sequence between the two circles. Previous research has found that items that occur closer in time are more difficult to differentiate than items that occur further apart in time. The study found that performance of all participants improved as a function of increased temporal separation lags. Older adults showed significant impairments compared to young adults across proximal and moderate temporal separations, but improved on distal separations. Thus, temporal order memory is impaired in older adults compared to young adults. The findings suggest that tasks involving temporal order memory for sequences may be used as a tool sensitive enough to detect early cognitive impairments in healthy older adults.

#142  1:00-2:15 pm  
**Cognitive Function Predicted from Odor Memory, Body Mass Index and Apolipoprotein E Status in Older Adults**
Esmeralda Valdivieso, Psychology  
Claire Murphy, Psychology

Background. Apolipoprotein E epsilon4 (ApoE e4) is a risk factor for Alzheimer’s disease (AD). AD is associated with impaired odor recognition memory and a particular vulnerability to commit false positive errors. In older adulthood, low BMI is associated with AD and mortality risk. The purpose of the present study was to investigate the influence of BMI, ApoE e4 and odor memory performance on cognitive functioning of older adults. Methods: Participants were 170 older adults recruited from the Alzheimer’s Disease Research Center at UCSD. 87 were healthy adults, and 83 had been diagnosed with probable AD. The Mini Mental State Examination (MMSE) was used to assess cognitive functioning. An odor recognition memory test was administered. Hits and correct rejections were summed to form an odor memory composite score. Raw scores for hits and false-positive errors were also analyzed. Analysis: Two regression analyses were conducted with MMSE as the outcome variable. The first model included BMI, ApoE status and odor memory as predictors. The three factors significantly contributed to predict MMSE scores: B = .15, B = -2.32, and B = .68, respectively. The second model included BMI, ApoE status, odor hits and odor false positive errors as predictors. All variables significantly predicted MMSE: B = .15, B = -2.33, B = .59, and B = -.74, respectively. Conclusion: Both models successfully predicted cognitive function of older adults. ApoE
accounted for a significant proportion of variance of MMSE. Odor false positive errors explained more variance than odor correct responses did. Low levels of BMI, low scores in the odor memory task and presence of the e4 allele predicted cognitive decline. Future investigations of the association between olfactory impairment and weight loss in older adults are warranted. Supported by NIH grants AG04085 (C. Murphy) and P50AG05131 (ADRC). R. Hofstetter is gratefully acknowledged.

Session B-1
Poster: Computer Science and Engineering
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

#143 2:15-3:30 pm
Carbon Nanotubes (CNTs) Have Been the Subject of Intense Research in the Past Decade
Preetam Borah, Mechanical Engineering
Khaled Morsi, Mechanical Engineering
Carbon nanotubes (CNTs) have been the subject of intense research in the past decade. These materials have orders of magnitude higher strength and stiffness compared to steel. Using these materials to reinforce metals can theoretically improve the properties of metals significantly. However, so far these hopes have not been realized, mainly due to poor dispersion of these carbon nanotubes within the metal that it is supposed to reinforce, and a lack of understanding of the interfacial properties between the metal and reinforcement. The current work is part of an NSF funded International project to investigate the mechanical dispersion of nanotubes in aluminum powder, followed by powder consolidation via hot extrusion. An important aspect is to reveal the processing-microstructure-property relations in these uniquely “dispersed” CNT-Al composites. Ball milling is used to generate a homogenous distribution of carbon nanotubes (CNTs) within Al powders, and also characterization in terms of microstructure and mechanical properties. The effect of milling time (up to 24 h) on the morphological development of the powders and dispersion of CNTs is investigated, in addition to influence on the internal structure of the powders and powder size and its distribution. The technique has so far been found effective in dispersing the nanotubes within the soft Al matrix which simultaneously protects the nanotubes from damage under the impact of the milling balls. These can have important implications for the processing of CNT-reinforced metal-matrix composites in general.

#144 2:15-3:30 pm
Piezoelectric L-Shaped Cantilever Manipulators
Steven Chang, Mechanical Engineering
Jingang Yi, Mechanical Engineering
We present a modeling scheme of a controlled cantilever-based L-shape manipulator using a single-crystal ferroelectric material (PMN-PT). First, we report on the design of a novel piezoelectric cantilever capable of motion in multiple degrees of freedom. The top and bottom surfaces of the L-shaped cantilever structure has been printed with inter-digitized electrodes (IDE), which allow the structure to produce both axial and flexural actuation independently. The modeling and control of such a manipulation structure are then discussed and presented. The analytical modeling results match well with finite element analysis and experimental results. The modeling scheme provides a high-fidelity mathematical model for manipulator control. This controlled planar manipulator has potential applications in optical beam steering systems and nano-manipulators inside a scanning electron microscope (SEM).

#145 2:15-3:30 pm
Comparison of Shape Analysis Techniques for HIV Protease-ligand Binding Prediction
Himali Desai, Electrical Engineering
Sunil Kumar, Electrical and Computer Engineering
To identify drug compounds expected to be active against a given target (e.g., HIV protease) is the focus of research in drug design. With many other parameters and factors involved, the structure and shape of the receptor (like protein pocket) and potential drug molecule plays a crucial role in predicting the function of a drug molecule against the receptor. The technique based on the shape of receptor and drug molecule is often used to identify a most suitable compound. Lately, the image processing based shape similarity and shape complementarities are being increasingly used in ligand-based and receptor-based drug design, respectively. Though shape similarity or complementarity alone is not enough for identification of suitable drug (ligand), it is a major factor in deciding the probable suitable drug molecules from a large library of molecules. Because of the high complexity of molecular shape, many successful 3D shape comparison and retrieval methods may or may not be useful when applied to molecular shapes. Additionally, the task of identifying drugs for HIV protease is even more challenging due to its mutating nature. The main focus of this research is to study the performance of the three molecular shape analysis techniques for HIV protease-ligand binding prediction. The contour-based pocket extraction and similarity comparison algorithm (MACT) is compared against very popular Ray Tracing based shape signature and most recent and fast Real Spherical Harmonic expansion based techniques.
Their various advantages and disadvantages as molecular shape descriptors are also discussed in details with results. The most suitable technique can then be applied to the HIV protease pockets to understand the nature of mutation in the HIV protease and in identifying the most suitable drug molecules for HIV.

#146 2:15-3:30 pm

**Measurement of Aortic Valve Leaflet Stain During LVAD Use**

Karen May-Newman, Mechanical Engineering
Luz Enriquez, Bioengineering

A Left Ventricular Assist Device (LVAD) is a mechanical pump used for patients with severe heart failure. These patients require a heart transplant and the LVAD is used until a donor heart is found as a “Bridge-to-Transplant”. If a suitable transplant heart cannot be found, the LVAD is used as a permanent solution, or “Destination Therapy”. The inflow of the LVAD is connected to the left ventricle and the outflow to the ascending aorta, bypassing the aortic valve. Our previous studies show that the LVAD increases transvalvular pressure (TVP) in the aortic valve. We hypothesize that this increase in TVP affects the stress and strain of the aortic valve, this can lead to valve disease or dysfunction. The aim of this study is to develop a method to measure valve leaflet strain in a mock loop containing a continuous flow LVAD. Small markers were attached to the ventricular side of a bioprosthetic aortic valve and a phantom valve. A digital camera was placed orthogonal to the closed valve and 100 images were recorded over 12 sec. Strain is calculated from the marker displacement field using a PIV correlation method. A range of flow conditions was tested including series and parallel flow for different levels of LVAD speed (7.6, 10 and 12.2 krpm) and cardiac contractility (Off and Med). Results show a small increase of strain with TVP, that is large in the valve phantom (ε~0.2) and small in the bioprosthetic valve (ε~0.02). The Hancock II bioprosthetic valve is fixed at a low pressure, thus exhibiting much stiffer leaflet behavior than a natural valve. Preliminary results indicate that our strain measurement system is capable of measuring strain in aortic valve leaflets; and will be applied to measuring strain in a natural aortic valve construct mounted in the mock loop.

#147 2:15-3:30 pm

**Development of a Milk-Based Coagulable Test Fluid for Mechanical Devices**

Lorraine Mallen, Bioengineering
Karen May-Newman, Mechanical Engineering

The objective of this study was to develop a technique for predicting the patterns of clot formation during use of blood contacting medical devices. Experimental in vitro use of human blood is not always practical due to potential exposure to health hazards, high cost, global clotting on foreign surfaces, and other difficulties. Finding an alternative model to overcome these obstacles would be advantageous to research evaluating the thrombogenicity of biomaterials and medical devices. Milk treated with rennet and CaCl2 has been identified as a novel alternative to blood clotting models, with both fluids having similar end cascade clotting reactions (Lewis and MacLeod, 1983). In this study, the mechanical properties of milk clots were evaluated using compaction and unconfined mechanical compression tests, and the results compared with fibrin clot properties as documented by Saldivar, et al (2002). Compaction tests were performed by centrifuging milk with various concentrations of rennet and CaCl2 concentrations (0%, 1%, 2.5% and 5% by volume), which had been allowed to set for 1 hour. Results showed 84% compaction for concentrations > 0, suggesting saturation. Compression tests were performed by loading clots (1% rennet/CaCl2; 1, 2 & 6hr set times) for 30 minutes. The clots compressed nonlinearly with respect to time, stabilizing within 20 minutes and remaining compressed after weight removal. The time course of clot compressive strain was similar for all samples, achieving a value of 0.4 ± 0.1 (1hr clot), 0.35 ± 0.06 (2hr clot), and 0.35 ± 0.02 (6hr clot) after 30 minutes of compression, indicating the clot was sufficiently solidified after 1 hour. Our results show milk clots are less compliant than acellular non-cross-linked fibrin clots, but they resist compressive loads in a similar manner to whole blood clots.

#148 2:15-3:30 pm

**High-current Density DC Magnetohydrodynamics (MHD) Micropump with Bubble Isolation and Release System**

Bao Nguyen, Bioengineering
Sam Kassegne, Mechanical Engineering

One of the major challenges for integrated Lab-on-a-Chip (LOC) systems is the precise control of fluid flow in a micro flow cell. Magnetohydrodynamics (MHD) micropumps which contain no moving parts and capable of generating a continuous flow in any ionic fluid offer an ideal solution for biological applications. MHD micropumping has been demonstrated by using both AC and DC currents by a number of researchers with varying degrees of success. However, current MHD designs based on DC (Direct Current) do not meet the flow rate requirements for fully automated LOC applications (> 100 ul/min). In this research, we introduce a novel DC-based MHD micropump which effectively increases flow rate by limiting the effects of electrolysis generated bubbles at the electrode-electrolyte interface through isolation and a mechanism for their release. Gas bubbles, particularly, hydrogen generated by high current density at the electrodes are the main culprit in low experimental flow rate compared with theoretical values. These tiny bubbles coalesce in the flow channel thus
obstructing the flow of fluid. Since hydrolysis is inevitable with DC excitation, compartmentalized electrode channels with bubble isolating and coalescence retarding mechanisms and bubble release systems are implemented to prevent the coalescence of these bubbles and minimize their effects on flow rate. In this novel design called BIRS (Bubble Isolation and Release System), flow rate of up to 325 µL/min is achieved using 1 M NaCl solution in DC mode with potentials of 5V and current density of about 5000 A/M2 for a main channel of 800 um x 800 um cross-section and 6.4 mm length.

#149 2:15-3:30 pm

Bi-Objective Reliability Based Design Optimization Incorporating Statistical Data Uncertainty

Raghu Sirimamilla, Aerospace Engineering
Satchi Venkataraman, Aerospace Engineering and Engineering Mechanics

Reliability based design optimization (RBDO) is necessary for the design of complex engineering systems with quantified levels of risk. To achieve failure probabilities in the order of 10-3 in large systems such as space vehicles and aerospace structures typical component level failure probabilities have to be of the order of 10-4 to 10-7. Quantification of risk using reliability based approaches relies on availability of statistics of the random variables that affect the response. In engineering applications where extensive tests cannot be performed, we introduce uncertainty into characterization of the random variables. The uncertainty is introduced from the use of small sample sizes to estimate the distribution parameters (mean and variance – location and scale) of a chosen distribution function; uncertainty could also arise from the selection of an incorrect probability distribution function (PDF). Including data uncertainty introduces yet another level of complexity to the already computationally expensive problem of RBDO. Inverse reliability measures have been proposed and used in RBDO to minimize computational effort. This poster presents methods to obtain confidence bounds for the inverse reliability measure, namely the probabilistic sufficiency factor, resulting from data uncertainty. The estimated confidence bounds are them approximated using a response surface for use in optimization. A bi-objective optimization is performed to achieve a design with the greatest reliability and lowest sensitivity to data uncertainty.

#150 2:15-3:30 pm

Current Activated Tip-based Sintering (CATS)

Edsel Villar, Mechanical Engineering
Khaled Morsi, Mechanical Engineering

Sintering involves the consolidation of powders into bulk and useful artifacts normally on the macro or large scale. The focus of this current work is the development of a novel manufacturing process that allows the controlled sintering of nano-scale and micro-scale features and devices from powders. The system can be adopted for 1D, 2D and 3D nano-scale powder-based fabrication, with wide reaching applications. Sintering is known to be a thermally activated process and for our system to be feasible, localized heating of a nano- or micro-sized powder bed to form controlled shapes is imperative, in addition rapid sintering rates would be important to be commercially competitive. Recently the passage of pulsed high electric current through a relatively large powder compact, while the powder is subjected to an applied pressure has been shown to provide outstanding results for sintering. Remarkable advantages of the process include; the ability to sinter powders at significantly lower sintering temperatures, sintering in significantly shorter times while using much higher heating rates than conventionally possible. The process is often called spark plasma sintering (SPS) however the work conducted to date has been to produce relatively large bulk specimens. However, if one considers layer (s) of deposited nanopowders, both the electric current and the pressure can be applied to the powder selectively through the tip of either a micro- or nano-indenter, to enforce local SPS conditions on the micro or nano-scale. Both the shape and size of the sintered nano or micro feature can then be controlled by controlling the micro/nano-indenter tip position and path (hence very articulate and complex shapes can be processed). This poster presents our experimental setup and some preliminary results for this new CATS (current-activated Tip-based Sintering) process. The work has also been approved by SDSU for provisional patent (Moon & Morsi 2008).

#151 2:15-3:30 pm

Optimization of Damage Tolerant Structure

Scott Wong, Aerospace Engineering
Satchi Venkataraman, Aerospace Engineering and Engineering Mechanics

Structural damage can be due to many reasons including corrosion, impacts, and fatigue. Such damage may trigger progressive failure in the structure. The best structures survive damage and continue to perform their purpose. Therefore a structure with a high probability of survival under the structure’s service load is desirable. Optimizing a structure that maximizes its probability of survival in the presence of unexpected damage is a computationally expensive problem. Thus in order to minimize computational effort it is important to have a surrogate model that can predict a design’s probability of surviving unexpected damage. This study considers an optimization of a truss structure that maximizes its probability to survive random damages. Damages are applied randomly to some members by reducing their ability to carry stresses using a fraction of their original cross-sectional area. To simulate progressive failure, the truss undergoes controlled incremental load. If the ultimate applied load exceeds the service
load, the structure survives random damages. A Monte-Carlo simulation is performed to compute the structure's probability of survival. Such simulation based methods for reliability prediction are computationally expensive and have numerical noise (sampling errors). The survival probability itself is a highly non-linear function. These characteristics dictate the use of a non-gradient based global optimization method for the design. To reduce the computational burden we investigate the use of Kriging to construct a surrogate model that can predict a design's probability of survival. An optimization is performed with the surrogate Kriging model using a genetic algorithm. The challenges in developing accurate surrogate models for this problem and the optimum designs obtained are discussed in this presentation.

#152 2:15-3:30 pm
An Algorithm for Computing the Jones Polynomial of Closed Paths in the Integer Lattice
Pik Shan Chan, Computer Science
Bill Root, Computer Science

An algorithm and corresponding computer program is presented for computing the Jones Polynomial of closed paths in the integer lattice, providing a tool to assist in the determination of the probability of knottedness as a function of length among closed integer lattice paths.

#153 2:15-3:30 pm
Mitigating Performance Bottlenecks in the Computation of Kloosterman Sums on the TMS320C6713 Digital Signal Processor
Tarun Bansal, Computer Science
Bill Root, Computer Science

Several approaches were explored for mitigating performance bottlenecks identified in an existing implementation of the Kloosterman Sum computation on the TMS320C6713 Digital Signal Processor. While subtle inherent limitations in the DSP’s supporting software precluded the use of software pipelining required by one intuitively appealing optimization approach, several other optimization strategies yielded significant performance gains.

#154 2:15-3:30 pm
Implementing Kloosterman Sum Computations on the TMS320C6713 Digital Signal Processor
Krushna Bagde, Computer Science
Bill Root, Computer Science

An algorithm for computing Kloosterman Sums was implemented on the TMS320C6713 Digital Signal Processor. Subsequent runtime analysis identified several performance bottlenecks in the implementation which might be mitigable. Kloosterman Sums are complex exponential sums which can take days to compute on a modern general purpose microprocessor; for this reason, the possibility that the use of an alternative hardware platform like the TMS320C6713 DSP might yield significantly faster computation of Kloosterman Sums is of considerable interest.

#155 2:15-3:30 pm
Extending SB-PRAM to Support the Common CRCW Processor Model
Vidya Sarangapani, Computer Science
Bill Root, Computer Science

The original architecture of the SB-PRAM parallel random access machine simulator, which supports only the Priority CRCW processor model, is extended to additionally support the Common CRCW processor model.

#156 2:15-3:30 pm
Electric Current Processing of Advanced Materials
Ahmed El Desouky, Mechanical Engineering
Khaled Morsi, Mechanical Engineering

Electric current consolidation of powders has been developing through the last two decades due it’s superiority over the convectional powder sintering methods including hot pressing and hot isostatic pressing. Advantages include higher heating rates (1000C/min), increasing reactivity in intermetallics, lower sintering temperatures, shorter holding time and improved material properties. Spark plasma Sintering (SPS) remains the most common and widely used name for the electric current sintering of powders. From the abundant studies carried out so far it can be concluded that the electric current has major effects on mass transport that can be summarized in the increase in vacancy/defect concentration, reduction in the activation energy for defect mobility and electromigration (electric wind effect) of the diffusion flux. Despite of its previously mentioned advantages, SPS is limited to simple geometries. Furthermore, work that has been conducted so far has allowed current to pass through the die material (usually graphite which can make the process inefficient from an energy efficiency standpoint). Therefore it is important to confine the current to only go through the metallic specimen being formed. The powder extrusion with the aid of high electric currents is expected to have the advantages of production of extended geometries, with reduced temperature and pressure requirements. An increase in the transformation kinetics of reactions is expected due to the combined effects of high electric current densities and bulk deformation. The complex interaction between high electric current densities and deformation will lead to modified rheological properties and recrystallization behavior of the extruded material which will be under investigation to reveal the underlying mechanisms in operation. We plan to investigate...
different material systems such as pure metals (aluminum), non reacting composites (Al-CNT), Reacting composites (Ti-TiBx) and intermetallics (NiTi). The process-microstructure-properties relations in this novel process will constitute a major aspect of the investigations. The work will include both experimental and modeling efforts.

### #157 2:15-3:30 pm

**Biomaterial**

Yen-Shan Lin, Mechanical Engineering  
Eugene Olevsky, Mechanical Engineering  

Teeth, the most important mineral tissue, is essential to the biting mechanism. Teeth composed of dentine inside which is tougher and enamel outside which is harder. We see the microstructure of many kinds of teeth by using the SEM. Piranha teeth have tiny serration on each tooth to optimize the biting mechanism. The serration of the piranha tooth is about 10-15um and of the great white shark is about 200-300um. The hardness test tell us that the hardness of dentine is similar to human teeth but the enamel hardness is smaller than human teeth. The present study is a preliminary research. The results of the characterization are used to develop some bioinspired system using ECAP or SPS.

### #158 2:15-3:30 pm

**Implementation of Immersed Boundary Method with Lagrangian Dynamic SGS Model**

Long Sun, Fluid Mechanics  

Successful modeling of the surface heterogeneities is a key step to describe the water, heat and momentum transport in the atmospheric boundary layer. Immersed Boundary Method (IBM) can be used to simulate the irregular obstacles, but most known researches in this area are employing it on the regular shape buildings in the city. Lagrangian dynamic subgrid-scale (SGS) model in the large eddy simulation (LES) can determine an appropriate local value of the Smagorinsky coefficient, which determines the magnitude of the dissipation of TKE by the SGS. This model is already used in many research areas, and is able to provide more realistic resolved fluctuating velocities and spectra. Combine the IBM with Lagrangian dynamic SGS model will allow the simulation of the effect of irregular obstacles, such as hills, on heat and moisture fluxes in the atmosphere. Numerical simulation of the flow over two-dimensional sinusoidal hill is set up in the research. The initial results are comparing with the results of other simulations and experiments. It illustrates the feasibility and the advantages of this combination. In the near future research can extend from the smooth hill surface to rough hill surface and also can extend to the three dimensional obstacles.

### Session B-1

**Poster: Geological Sciences**  
Friday, February 29th, 2008, 1:00 – 4:45 pm  
Location: Montezuma Hall South

### #159 3:30-4:45 pm

**Determination of Crustal Thickness in the Caucasus and Caspian Region Using Receiver Functions**

Rumi Takedatsu, Geology  
Robert J. Mellors, Geological Sciences  

The collision of the Arabian plate and Eurasia has created complex tectonics and structure in the Caucasus and Caspian region. In particular, the South Caspian Basin has a very different lithospheric structure from the surrounding region. According to Russian refraction analysis in 1960s, the South Caspian Basin has been filled by unusually thick sediment layer directly over possible oceanic crust, without a granitic layer. Because the detailed lithospheric and seismic structures in the region are not well known, various hypotheses to explain the structure have been suggested, and they are still controversial topics. One way to estimate crustal thickness is to use receiver functions. Receiver functions are a well-established technique to determine the boundary between crust and upper mantle (Moho) using three-component broadband seismograms. We use receiver functions based on seismic data from 14 broadband stations in Azerbaijan to identify P to S converted phases, and then determine the time differences between P and the P to S converted phases to estimate the depth of Moho beneath the each station. The best depth is determined by comparing theoretical receiver functions with the observed receiver functions. So far, we have good results for the structure beneath station LKR on the Caspian coast. We estimate that the Moho depth beneath the station is about 35 km and the crust consists of a thin sedimentary layer (5 km with Vp = 3.0 km/s) overlying a thicker crystalline layer (30 km with Vp = 7.0 km/s). Our goal is to estimate Moho depth in the region and understand regional tectonics.
Session B-1
Poster: Mathematics and Computational Sciences
Friday, February 29th, 2008, 1:00 – 4:45 pm
Location: Montezuma Hall South

#160 3:30-4:45 pm
Shannon’s Uncertainty and Kullback-Leibler Divergence in Microbial Genome and Metagenome Sequences
Sajia Akhter, Computational Sciences
Robert Edwards, Computational Science
All genome sequence data contains inherent information in it. Shannon’s uncertainty theory can be used to measure of how much information a sequence has. Here we show that the amount of information in a sequence correlates with the similar sequences that will be found in the database using search algorithms (BLAST). Hence, a sequence with more information (higher uncertainty), has a higher probability of being significantly similar to other sequences in the database. Measuring uncertainty maybe a rapid way to screen for sequences likely to be similar to things in the database, and also show which sequences with no known similarities are likely to be false negatives. Here, we also present some work on amino acid composition for each of the complete bacterial genome sequences. We show that (i) there is a significant difference between amino acid utilization in different phylogenetic groups of bacteria; (ii) that the bacteria with the most skewed amino acid utilization profile are endosymbionts or intracellular pathogens; and (iii) the skews are not restricted to one or a few metabolic processes but are across all subsystems.

#161 3:30-4:45 pm
Computational Investigation of the Reaction Thermochemistry and Kinetics of TTQ Cofactor
Belynda Sanders, Biochemistry
Andrew Cooksy, Chemistry
Among the simplest electrobiochemical pathways to characterize experimentally is a series of electron transfer reactions that provide the mechanism for dehydrogenation of methylamine. We describe a computational investigation of the chemical reaction mechanism for the enzyme activity of methylamine dehydrogenase in converting methylamine to ammonia and formaldehyde, focusing on the activity of the cofactor tryptophan tryptophylquinone (TTQ). The free energies, reaction rate constants, and related effects of temperature, pH, and isotopic substitution are being computed for comparison against experimental observations. Electronic structure calculations are carried out by density functional methods shown to be effective in the study of simpler chemical systems involving the dynamics of conjugated pi-electron systems. The reaction energies of several reaction steps have been mapped along selected reaction coordinates, and additional reaction steps are currently being probed to determine the minimum energy path. The COSMO-RS model will then be applied to account for the considerable solvent effects in ion-mediated reaction dynamics, and will allow determination of the influence of pH on the reaction system.

#162 3:30-4:45 pm
Development of a Computer Program to Analyze the Renner-Teller Effect in NCO
Chris Estela, Chemistry
Andrew Cooksy, Chemistry
The NCO free radical is an important molecule to study because its linear conformation allows us to create a simple effective Hamiltonian describing the most prominent contributing factors, but still allows us room to take into account the abundance of smaller interactions taking place on the molecular level. Among the most important factors yielded by examining NCO is the Renner-Teller effect. Our computational study is part of an ongoing project to simultaneously analyze the lowest energy vibronic quantum states of NCO, using existing, high-resolution spectroscopic data. These vibronic states are grouped into “unique” states, which are obtained by specific vector combinations of the electronic and vibrational angular momenta, and the more complicated “non-unique” states, for which there are two different vector sums that yield the same overall vibronic angular momentum. Presently, the unique \( \nu_2=0^2 \pi, \nu_3=1^2 \Delta, \) and \( \nu_2=2^2 \Phi \) vibronic states and non-unique \( \nu_2=1^2 \Sigma \) state have been analyzed and fit to experimental data with high precision. This study now aims to develop the computer code for analyzing data from the non-unique \( \nu_2=2^2 \pi, \nu_3=1-0 \) and \( \nu_2=1^2 \Sigma \) band of NCO. The non-unique states are split by a combination of spin-orbit and Renner-Teller coupling, and this requires a more general labeling scheme for the eigenstates of the Hamiltonian matrix than has previously been implemented. Additional terms in the effective Hamiltonian may also have to be derived by perturbation theory in order to fit the data to the experimental precision, and the program will then be applicable to a variety of free radical systems.

#163 3:30-4:45 pm
Gridding and Displaying of Texas Daily Precipitation from 1901 to 2000
Benedikt Kramps, Mathematics
Samuel Shen, Mathematics and Statistics
The presentation is based on the thesis “GRIDDING DAILY PRECIPITATION DATA OVER TEXAS” written by Andreas Rupp in 2007. It presents different methods to interpolate daily
Robert Schmieder, Computational Sciences

ADAPTdb/ADAPT - A Framework for the Analysis of ARISA Data Sets

The characterization of natural microbial assemblages in community profiling projects introduces the major scientific challenges of understanding and predicting the function and response to environmental changes of microbes of an ecosystem. Here, we present a system for the automatic analysis of ARISA data sets. ARISA is a method for analyzing the composition of microbial communities, which performs faster and at a much lower cost than other community profiling techniques. ARISA relies on the analysis of intergenic regions called internal transcribed spacer (ITS), which are located between the 16S and 23S rRNA genes. The database ADAPTdb was created to store and maintain ITS regions along with information about their source organisms. The data stored in ADAPTdb is retrieved from different data resources, such as the Entrez sequence databases. The program ADAPT was developed to taxonomically characterize ARISA data sets using ADAPTdb. The additional organism information for each ITS region in the ADAPTdb database is used by ADAPT for pathogenic and autotrophic/heterotrophic comparisons of organisms among different ARISA samples. The program is publicly available through a user-friendly web interface, which allows onsite analysis of ARISA data sets and computation of the output. The interactive web interface facilitates navigation through the output and export functionality for subsequent analysis.

#164 3:30-4:45 pm

Ruin Models and Probabilities for Inventory Data

Nathan Wells, Statistics
Vladimir Rotar, Mathematics and Statistics

Inventory can be a major liability for a company. Modeling inventory can be a very important tool for management to see inventory trends and set goals in order to control inventory amounts. Inventory data collected at an end of a time period can be modeled very closely to actuarial ruin models. From this model, ruin probabilities, using the Lundberg Inequality, can be generated for a loss process. This paper will make the connection between an insurance company collecting premiums to pay claims per a time interval and a company accruing inventory to be used in products per a time interval. The paper will then discuss the methods of estimating the loss process distributions and calculating the Lundberg Inequality using moment generating functions. In order to compare different ruin probability models, I will utilize model selection techniques in order to select the best model that represents the data. In conclusion, I will show the application of the ruin model to inventory data and show how the ruin probabilities can be utilized to create goal driven inventory control.

#165 3:30-4:45 pm

ADAPTdb/ADAPT - A Framework for the Analysis of ARISA Data Sets

Robert Schmieder, Computational Sciences
Robert Edwards, Computational Science

The characterization of natural microbial assemblages in community profiling projects introduces the major scientific challenges of understanding and predicting the function and response to precipitation data on a grid of arbitrary density and the computer based implementation of these methods. This is, searching for the stations which are necessary for the interpolation followed by the actual interpolation process. All the computations are based on data provided by the Global Historical Climatology Network. It consists of daily minimum and maximum temperature and daily precipitation from March 1, 1840 to November 30, 2000 for over 30,000 stations worldwide. The software developed by A. Rupp for his thesis interpolates daily precipitation data on a grid over Texas. It is using the nearest station assignment, inverse distance weighting and a hybrid of both. Furthermore, the quality of the different methods is compared using statistical methods for error analysis. This daily precipitation data is important for risk management of extreme weather conditions, the pricing of weather derivatives and the climate change analysis. Based on this research done by A. Rupp similar work for California has to be done, including a closer look on the effect of those interpolations to weather derivatives.

#166 3:30-4:45 pm

Factor Analysis for El Niño Signals in Sea Surface Temperature and Precipitation

Christine Lee, Biostatistics
Samuel Shen, Mathematics and Statistics

Maximum likelihood factor analysis (MLFA) is applied to groups of variables of monthly Tropical Pacific sea surface temperatures (SST) from Niño 1+2, Niño 3, Niño 3.4, and Niño 4 and precipitations over eastern Australia, Kalimantan island of Indonesia, and the west coast of the United States. The monthly data used were from 1950 to 1999. The SST time leads of zero, one, two, and three months to precipitation are considered for both El Niño warm phases and non El Niño seasons. For El Niño signals, the rotated FA loadings can efficiently group the SST and precipitation variables with interpretable physical meanings. When the time lag is zero or one month, the November-February El Niño explains much of the precipitation signals over eastern Australia and Kalimantan, but when the time lag is two or three months the same SST cannot adequately explain the precipitation during January-May over the two regions, because Australian-Indian monsoon dynamics plays a dominant role for this season. The tropical Pacific’s SSTs always have high potential prediction skills for the precipitation over the west coast of the United States. Principal component factor analysis (PCFA) is also investigated, and its results are compared with MLFA. The comparison indicates that MLFA can better group SST predictors for precipitation forecasting. The residuals of MLFA are always smaller than the PCFA. Thus, MLFA is a useful tool for raising the forecasting skill of precipitation from SST predictors.
#167 3:30-4:45 pm

Bayesian Inference Methods for Quantifying Data Uncertainty of Statistical Parameters and Distributions

Kun Marhadi, Computational Sciences
Satchi Venkataraman, Aerospace Engineering and Engineering Mechanics

Probabilistic analysis of physical systems (e.g. simulation for reliability estimate) requires information on the distributions of the random variables. These distributions are typically obtained from testing or field data. In engineering, where tests are expensive, the sample size of such data are small O(10). Identifying the correct distributions with such sample size is difficult. A distribution function is often chosen based on prior knowledge (experience) of the underlying distribution of the random variable. The chosen distribution is then fitted to the samples, and a goodness of fit test is performed to accept or reject the chosen distribution. When the sample size is small, the goodness of fit measures is not sufficient to discern the best distribution function. Even when a correct distribution function can be identified, fitting the distribution to small sample data creates uncertainty in the parameters of the distribution function. Thus the results of probabilistic analysis can be uncertain if the analysis uses parameters from the fitted function. In this study a Johnson unbounded (SU) family distribution function is used to identify the shape, location and scale parameters of distribution that can best fit small sample data.

In order to quantify the uncertainty in the fitted parameters, a Bayesian inference procedure is used, in which the distributions of these parameters are determined. In a test case, samples from distributions of these parameters are then used to determine confidence bounds of probability of failure estimates of a system. The results show that with this method, the probability of failure of the system can be estimated with high confidence in a small interval. The advantage of this method is that using Johnson unbounded family distribution function eliminates the needs of having prior knowledge of the characteristic of the sample data.

#168 3:30-4:45 pm

Fourier Analysis of Time Course Microarray Data and its Relevance to Gene Expression Dynamics

Jerry Chen, Computational Sciences
Paul Paolini, Biology

The overall aim of our biological research is to supplement traditional experimental techniques with computational and engineering methodologies for gaining more insight into gene and protein interaction networks and gene expression dynamics. The following study demonstrates the effectiveness of using a signal processing technique called the Fast Fourier Transform (FFT) on time course microarray (TCM) data for finding genes whose expression oscillates over time. Using FFT on previously published yeast TCM data, we find that 313 genes show periodic expression. Interestingly, there are four dominant periodicities, one of which matches the yeast cell cycle. The biological processes underlying the remaining three periodicities remain unknown. Gene annotation and GO functional analysis verify the presence of periodic cell cycle genes within the set of 313 genes found. Thus, Fourier analysis is a valuable tool for understanding gene expression dynamics.

#169 3:30-4:45 pm

Scoring Amino Acid Substitutions Phage Genomes

Promita Bose, Computational Sciences
Robert Edwards, Computational Science

Substitution matrices are among the most widely used scoring techniques : BLAST, Phylip and other alignment packages, all use them. However these matrices are general, ignore organism specific properties, and do not provide customized scoring schemes. We present a phage specific Blosum matrix based on the abundances of aligned substitutions. These matrices use information from approximately five and a half million significantly similar protein alignments and over five hundred phage genomes. Our scoring matrix is significantly different from the existing PAM and BLOSUM matrices and indicate the need for similar treatments for other groups of organisms.

Session B-2
Oral Presentation: Gender and Sexuality
Friday, February 29th, 2008, 1:15 pm
Location: Back Door

#170 1:15 pm

Skirting the Issue

Tiffany Lopez, Religious Studies
Roy Whitaker, Religious Studies/English and Comparative Literature

Womanist theology has failed to create a viable discourse regarding the sexuality of black lesbians within the Black Church. For the purpose of my paper Womanist theology is understood as Christian theology from a Black female perspective. Through my research, I found that black lesbian sexuality was often a subheading under black female sexuality. By failing to give this important issue its own forum Womanist Theologians have failed to recognize or discuss other factors related to the marginalization of Black lesbians within the Black Church.
ABSTRACTS

#171 1:30 pm

From Theory to Action: Creating a Feminist Nonprofit Organization-Feminist Art Space

Jeannette Wooden, Women's Studies
Susan Cayleff, Women's Studies

This project consists of starting a feminist non-profit organization: Feminist Art Space. My contextual research examines: (1) the cognitive processes of acquiring knowledge to taking action and (2) the creative process as a vehicle for empowerment. The process of starting a non-profit organization (NPO), and my experiences while doing so are also discussed. Starting a NPO encapsulates what I believe is most important about education: taking the knowledge you have learned and applying and sharing it. This transcends discourse and unites theory and action. This project documents the process, the difficulties and successes of starting an NPO. It also shows that theory, thoughts and ideas can inspire a movement and an organization. The project shows how an organization begins and grows. This process reveals how I grow as a feminist, activist and educator while organizing/creating Feminist Art Space.

#172 1:45 pm

Subversive Power and Invisibility: An Examination of Looking Both Ways: Bisexual Politics

Jennifer Scarduzio, Communication
Valerie Renegar, Communication

Bisexual women are often described as being trendy, manipulative, or fake. In addition, these women are rarely classified as powerful. Hence, the primary purpose of this study is to investigate bisexual women’s subversive power and invisibility. I utilize critical rhetorical methods to examine Look Both Ways: Bisexual Politics (LBW) written by Jennifer Baumgardner, a well-known feminist activist and writer, as my primary text. In my analysis, I employ three distinctive theoretical lenses: passing theory, the notion of borderlands, and Ricoeur’s theory of twofold movement. My results suggest that through attempts to “pass” as both gay and straight, having romantic relationships with both men and women, and remaining invisible to most of mainstream society, bisexual women can generate subversive power. This subversive power not only allows these women to have access to both gay and straight people, but it also reveals that their position can actually create a bridge between homosexuals and heterosexuals. The conclusion proposes that by employing a rhetorical strategy of subversive power bisexual women can generate a sense of purpose and community for not only bisexuals but for other in-between groups (i.e., biracial people). This creation of community allows people to be more comfortable in their own skin and enhances communication within the group itself. Even more, this subversive power reveals the complexity and significance that people in between groups hold and furthermore illuminates the need for more research on the invisible groups that are located between marginalized and dominant cultures.

#173 2:00 pm

Queering the Field: A Study of Northern California Collegiate Rugby

Jenik Heim, Women’s Studies
Susan Cayleff, Women's Studies

The overall goal of my Master’s thesis is to analyze a survey I created which asks Northern Californian collegiate current and former rugby players about their rugby experiences, sexuality, and connections between the two. I will analyze the results of this survey utilizing sports and queer theories. My research will add to the relatively new field of queer sports theory. My methodology includes background information on the history of men’s and women’s sports, the cultural significance of sport, women’s sports and sexualities, and queer theory. The survey I created has thirty-seven questions and is still being administered online on SurveyMonkey. The results and conclusions are not final because they are still in the collection process. I hope to present on the background information, the survey format, and the data I have collected so far.

#174 2:15 pm

Singing in the Rei(g)n(s)

Mary Long, Women’s Studies

In my pursuit of the possible link between young women, anime, and the sciences, I have analyzed the antagonist of the serial show Blood+, first aired in Japan, then in the United States, in the context of gender performance, biological assumptions, posthumanism, and the role of personal identity versus that of group identity politics. The goal, using queer and gender theory, is to demonstrate that gender performance in conjunction with the imposed role of institutional science creates a space for inquiry about the social/heteronormative aspects of each. This space, in consideration of the growing popularity of anime (Japanese animation) with young/women in the United States, is ripe with the potential to affect perceptions of gender, sex, and science, and harbors encouragement to both explore and challenge the relationships that exist between women, technology, sex determinism, the heterosexual matrix, and science.
Session B-3
Oral Presentation: Languages and Linguistics
Friday, February 29th, 2008, 1:15 pm
Location: Calmecac

#175 1:15 pm
**Temporal Asynchrony Sensitivity for Co-speech Gesture and Signs**
Danielle Lucien, Speech Language Pathology
Karen Emmorey, Speech Language and Hearing Sciences

People are very sensitive to asynchronies between auditory and visual events, such as when the sound is not in sync with the picture on television. For both speech and non-speech events (e.g., a hammer hitting a peg), people are more sensitive to asynchrony when the audio precedes, rather than follows, the visual event. When people gesture while speaking, their gestures either slightly precede or occur simultaneously with the associated spoken word, but rarely lag behind it. Similarly, when ASL-English bilinguals produce a sign while speaking English (a code-blend), the sign is produced simultaneously with or slightly before the word. We investigated whether sensitivity to asynchrony in co-speech gesture and code-blends is the same as that for other linked audio-visual events. Subjects were presented with video clips of two people gesturing or producing code-blends while talking (with the mouth obscured). Movies were made from each conversation with audio offsets of 3, 6, 9, 12, or 15 frames both leading the video (A-lead) and lagging (A-lag) the video (range: +/- 100 - 500ms). Subjects watched both a “forward” block of video clips starting with the audio and video in sync, responding when they felt that the clip was asynchronous, and a “backward” block starting with audio and video out of sync, responding when they felt the audio and video were synced. Preliminary data (N=5) shows that sensitivity to asynchrony in ASL-English code-blends patterns similarly to that for speech and object audio-visual stimuli, with smaller thresholds for A-lead (mean = 168ms) than for A-lag (mean = 318ms). In contrast, co-speech gesture (N=4) patterned differently, with only a small difference between A-lead and A-lag (mean = 231ms, mean = 261ms, respectively). These results suggest that the signs and speech in code-blends are tightly linked, while gesture and speech operate more independently.

#176 1:30 pm
**A Crosslinguistic Analysis of English Verbs that Express Trajectory Movement in Young Latino Children**
Meghan Fillipp, Speech, Language, and Hearing Sciences
Vera F. Gutierrez-Clellen, Speech Language and Hearing Sciences

Various researchers have characterized the distinct manner in which motion events are described in Spanish and English. Each language utilizes verbs and prepositions differently in order to express trajectory movement. Thus, native Spanish speaking children learning English as a second language have to learn a new means of describing motion events that differs from their first language. Considering this distinction, it is possible that the child’s performance in English will be influenced by their knowledge of Spanish. This tendency in second language acquisition is often referred to as “transfer” (Genesee, 2004). The purpose of this study was to examine if the manner in which English motion events are described by bilingual children is influenced by cross-linguistic transfer from Spanish to English. This study will also address how Specific Language Impairment (SLI), affects children’s ability to describe motion events. Each subject narrated a picture book, Frog, Where Are You? (Mayer, 1969). Their narratives were transcribed using the Systematic Analysis of Language Transcripts (SALT) computer program (Miller & Chapman, 2000). The only utterances analyzed were those that included verbs that express trajectory movement. The results of this study suggest that the manner in which motion events are expressed may transfer from Spanish to English considering the greater use of bare verbs of motion by bilingual children in comparison to their monolingual peers. Evidence of crosslinguistic transfer is also corroborated by the overall lower frequency of motion verbs produced by the bilingual children. However, there were no differences between the children with and without language impairment on these measures. This study suggests that bilingual children may need more direct teaching of English verbs of motion since their knowledge of motion verbs in Spanish cannot directly transfer to their use in English. Difficulties in this area should not be confused with a language disorder.

#177 1:45 pm
**Time Course of Statistical Word Learning as Evidenced by Event-related Potentials**
Georgia Hall, Psychology
Julia Evans, Speech Language and Hearing Sciences

The purpose of this project is to investigate the time course of implicit word learning in individuals using event-related potentials (ERP). The ability to track temporally bounded information appears crucial to be able to encode and represent temporal order information. One potential method for encoding temporal order is to learn the statistical relationship of elements within sequential input. A number of studies suggest that the transitional probabilities between syllables assist learners in implicitly discovering which sounds cohere together into words and which sounds span word boundaries. Implicit learning is a gradual and ongoing process. In this study we ask if, during the earliest stages of learning, prior to participants showing evidence of learning on...
behavioral measures, can this process be examined using ERPs. We will focus on a negative 400 ms (N400) and a negative 100 ms (N100) peak to explore the magnitude of implicit word learning while exposing participants to either a 14 or 21 minute continuous speech stream where transitional probabilities between syllables is the only cue to word boundaries. If participants are relying on statistical cues to learn words within a continuous stream of speech, then the N400/N100 peak amplitudes for words embedded within this stream of speech will be smaller than for non-words.

#178 2:00 pm

Fostering Protolanguage Meaning: Neonatal Communication Sensitivity
Tricia Yeomans, Communication Studies
Peter Andersen, Communication

Neonates or preverbal babies ranging from 0 to 3 months of age, have a system of seemingly arbitrary vocal references, or a protolanguage that is a phylogenetic precursor to our true speech language. Protolanguage can consist of cooing, babbling, gurgling, grunting, squeaking, and other non-speech sounds. Besides sounds, preverbal babies also enact in many nonverbal gestures that can include touching, kicking, pulling, banging, as well as enacting emotional expressions. Neonatal communication fosters a response from caretakers; however without correct knowledge of the wants and needs of the infant, effective communication is lost. Studying preverbal infants is complicated by the uncertainty that verbal questions cannot be directed or answered by the infants themselves. For the purposes of this study mothers were recruited to participate in an “Infant Communication Study” designed to assess their interpersonal sensitivity, sociability, non-verbal encoding and decoding ability. The mothers were asked to complete a social skills survey and watch a DVD of infants making various sounds and to report their impressions. The objective of this research was twofold; to determine if most mothers would attribute the same meaning to the sounds on the DVD and to determine if a relationship exists between mothers who score high on a social skills measure and their understanding of babies’ communication. The study results indicated that the majority of mothers, (it did not matter if they scored high on the social skills measure) were able to correctly distinguish the sounds of hunger (55%) and tiredness (38%) made by babies on a DVD. Mothers that understand babies’ sounds and expressions on a DVD may suggest that there is a recognizable sound pattern made by 0-3 month olds that mothers may instinctively decipher, not only for their own child but for infants in general.

#179 2:15 pm

Emotion Triggers in Temporary Linguistic Regression
Tara Hack, Communication
Peter Andersen, Communication

This literature review seeks to examine the connection between emotional expression and the tendency toward temporary linguistic regression, either in language, or accent/dialect through a comprehensive analysis of existing literature. More specifically, it attempts to address how emotional triggers may cause individuals, during a communicated emotional state, to revert to the original language or accent/dialect with which one is most familiar and from which emotional vocabulary first emerged. Studies which demonstrate the socialization processes of language are discussed. Additionally, this paper includes research and case studies on babytalk in communication, bilingualism and emotional expression, as well as accent/dialectical research in order to draw necessary conclusions and propose future contributions to existing theory.

#180 2:30 pm

Experimental Research Articles in Linguistics: Sub-disciplinary Variations in Macro- and Micro-level Structures
Masako Rodriguez, Linguistics
Betty Samraj, Linguistics and Asian/Middle Eastern Languages

Over the last twenty years, experimental research articles have become an important site for the analysis of academic writing. A large number of researchers have examined the rhetorical organization and the lexicogrammatical features of this genre in various disciplines (e.g., Anthony, 1999; MacDonald, 1992; Samraj, 2002; Swales, 1990) and observed significant variations across disciplines. However, there has been little research on variation in academic writing within a discipline, and research articles from linguistics have received little attention thus far. The present study examined experimental research articles in two subfields of linguistics, applied linguistics and psycholinguistics. A total of thirty research articles—fifteen articles from a single journal in each subfield—were selected for analysis, and their section headings as well as the rhetorical organization, references to previous studies, and foregrounded information in terms of sentence subject choice in the introduction sections were examined. The results of the analyses indicate sub-disciplinary similarities and differences, which has important pedagogical implications. The psycholinguistics research articles generally include the sub-sections of Introduction, Method, Results, and Discussion, whereas there are no uniform conventions for naming the sections of the applied linguistics research articles. The authors of the research articles from both sub-disciplines begin their introduction
sections with topic generalizations with increasing specificity and indicate a gap to justify their study. When referring to previous studies, they also generalize the findings of previous studies, rather than reporting specific findings of one study. However, the authors of the psycholinguistics research articles foreground the information concerning knowledge and reasoning by choosing it as a sentence subject, whereas the authors of the applied linguistics research articles foreground the phenomena being studied and the epistemological warrants with equal degree. These findings can be used by university-level composition teachers to raise their students’ awareness of disciplinary and sub-disciplinary variations in the construction of research articles.

Session B-4
Oral Presentation:
Sustainability, Environment, and Conservation
Friday, February 29th, 2008, 1:15 pm
Location: Casa Real

#181 1:15 pm
Towards a Sustainable Global Philosophy: Deconstruction as Method
David Alvarado, Philosophy
Sandra Wawrytko, Philosophy/Asia Pacific Studies

The purpose of this paper is: To show the various ways that global philosophy is understood. This will include the original intention, similar terms that seem to parallel that intention, and the current developments of global philosophy. To evaluate the current merits and downfall that global philosophy has been undergoing. To provide certain conditions for sustainability. As the first part of a three-part thesis, this initial section will briefly demonstrate how the method of deconstruction can satisfy the conditions for a global philosophy. It will also briefly introduce the overall thesis’ proposal of a new global philosophy with the method of deconstruction as its underbelly. Due to the limited scope of this paper, much of the body of the overall thesis proposal will have to be briefly stated. The emphasis is to provide an adequate explanation of the concept of global philosophy, its current developments, the benefits and pitfalls, along with some conditions for sustainability. Though the thrust of my thesis will not be covered in this paper, there are significant and meaningful contents in this essay.

ABSTRACTS
By sustainability, I refer to the capacity to prolong and endure through time, place and change. To withstand the dynamic currents of the global atmosphere, one must ensure a clear purpose, strong foundations, and demonstrate the potential for longevity, thus presenting a sustainable global philosophy. Providing certain conditions for sustainability is the main contribution of this paper.

#182 1:30 pm
Widening the Conception of Environmental Change: Aquaculture Development in Baja California and Implications for Mangrove Ecosystems
Emily Atkinson, Geography
Kathleen Farley, Geography

The issue that this proposed study focuses on is the relationship between environmental change and broader socio-economic forces. The objective of this study is to link these two components within a political ecology framework to demonstrate that non-local forces influence environmental change and environmental discourse at the local community level. To accomplish this objective, I examine the extent of mangrove ecosystem conversion in conjunction with areas experiencing increased aquaculture production in the region of Baja California Sur, Mexico. The proposed research will engage with past and present literature relevant to these topics including environmental economics, landscape change, political ecology, ecosystem services, and recent developments in aquaculture production. A combination of methods will be used including using remotely sensed data on an annual scale to monitor vegetation changes in the mangroves as well as conducting semi-structured interviews with local residents. The remotely sensed data will be analyzed at the Center for Earth Systems Analysis Research Lab at San Diego State University. In addition, field work will be conducted during the summer of 2008 in specific cities in Baja, California including San Ignacio, La Paz and Bahia Magdalena. The use of these combined methods will create an historical context of the evolving resource management policies occurring in Baja California Sur, Mexico. The intellectual merit of this proposed study lies in its aim to widen the conceptualization of the underlying causes of environmental change. A more complete perspective of the forces involved in environmental change will contribute to the academic community as well as other communities involved with relevant policy creation and implementation. With this research national and local policies and management practices pertaining to land use and land tenure will have the opportunity to encompass a broader spectrum of knowledge and thus be more effective.

#183 1:45 pm
Defining the Oasis of Mulegé: Water Politics and Environmental Concerns in an Oasis Community in Baja California Sur, Mexico
Michael Topmiller, Latin American Studies
James Gerber, Latin American Studies

If Baja California Sur is to achieve sustainable economic development, careful attention must be paid to its main sources of water, its oases. This thesis will focus on the oasis of Mulegé, located
in the northeast portion of the Baja California Sur. The purpose of this thesis is to define and create a community map of the oasis of Mulegé, investigate the decision making structure underlying water management and allocation, and examine environmental issues and problems that could prevent the sustainable development of the region. The community maps were created using Geographic Information Systems (GIS), while informal and semi-structured interviews were conducted in order to determine the local water politics and relevant environmental problems. The results of the analysis indicate that the oasis of Mulegé region is in need of regional planning that addresses the insufficient infrastructure and incorporates environmental concerns into the development plans. This project will also serve as a model of how to define other oases communities in Baja California Sur, in addition to identifying the relevant institutions that govern water allocation and management in the oasis community of Mulegé.

#184 2:00 pm

**The Influence of La Suerte Biological Research Station on a Community in Costa Rica: Implications for Attitudes and Awareness of Primate Conservation**

Kelly Krueger, Interdisciplinary Studies
Erin Riley, Anthropology

The protection of nonhuman primates (apes, monkeys and prosimians) goes beyond efforts we see in zoos and wildlife sanctuaries. In situ studies reveal that hunting, capture for the pet trade, illegal logging, and habitat destruction are the biggest threats to primates (Cowlishaw and Dunbar 2000). The World Conservation Union has compiled lists of the world’s most endangered nonhuman primates. Of the near 300 species in the primate order, 20 have been classified as “Critically Endangered” and another 48 are considered “Endangered” (IUCN, 2006). This project set out to assess the perceptions, knowledge and attitudes of a local population that live near a biological research station in Costa Rica with respect to primate conservation and conservation awareness. Assessing these elements of local people who live in rainforest communities is an integral part of the conservation process and is becoming an increasingly important step before new conservation actions are implemented. Non-human primates are an essential part of rainforest ecosystems and their preservation is crucial if the ecological dynamics of forests are to remain stable. However, many people who utilize forest resources or are affected by wildlife of the forests have adopted different attitudes as to what is important with respect to livelihood and/or cultural perceptions. The data analyzed in this research project will help to determine if the biological field station has had an influence on local people with regard to their perceptions of rainforest and primate conservation. A major element of this research was to look at how this field station has played a part in the community and its role in conservation education. Initial studies such as this can help researchers and conservationists in their efforts to protect and restore rainforest ecosystems.

#185 2:15 pm

**An Agent-based Model of Residential Development: Testing the Influence of Risk-taking Attitudes on Land Configuration**

Arika Ligmann-Zielinska, Geography
Piotr Jankowski, Geography

Spatial agents act upon a common environment on the basis of incomplete information, where the perception of option utilities varies from individual to individual. Consequently, one of the biggest challenges in modeling land use development is a theory-driven representation of human behavior. This paper reports on an agent-based modeling experiment which tests different mathematical approximations of risky decision making mechanisms motivated by concepts from attitude psychology. The decision rules programmed in the model are representative of risk-taking and risk-avoiding attitudes. The goal of these experiments is to assess spatial consequences of employing different attitude utility functions. These nonlinear functions reflect people’s simplified psychological frames of reference for land-related decisions. The experiments are performed on an artificial landscape, which is being developed by competing agents equipped with a couple of land-related objectives and utilizing a number of configurations of attitudes to risk. The subsequent land arrangements of abstract settlements are compared based on selected landscape fragmentation metrics. The results of the presented research suggest that different attitudes to risk may significantly reshape the configuration of development patterns. We argue for further investigation of psychological drivers that stand behind property development decisions affecting land use change. Such knowledge constitutes the first step towards gaining a better understanding of sustainable land use policies.

Session B-5

**Oral Presentation: Educational Technology**

Friday, February 29th, 2008, 1:15 pm
Location: Council Chambers

#186 1:15 pm

**mLearning, or Blended Learning On-the-Go**

Daniel Novak, Educational Technology
Minjuan Wang, Educational Technology

During Summer 2007, I participated in an international research project based in Shanghai, China, under the guidance of Prof. Minjuan Wang. The project examined a major Chinese university’s...
use of mLearning (classroom and distance learning augmented by cellular communications) in English language and computer science courses. The project found that both groups of students felt comfortable with the technology, felt more connected to other students, and achieved higher grades. mLearning, or Blended Learning On-the-Go presents the results of our study in the context of Chinese higher education, and offers ideas for how American educators can make use of mobile learning technologies in their classrooms.

#187 1:30 pm
A Concerns-based Adoption Model Study of University Instructors Engaged in Faculty Development for Enhancing Learning with Technology
Jim Julius, Educational Technology
Marcie Bober, Educational Technology

For over a decade, theorists have suggested that higher education institutions are shifting from an emphasis on student access to instruction to student success in learning. Digital technologies are often promoted as an important component of this shift. Because serious efforts at technology integration not only require competence with the technologies, but also often result in changes to instructional methods, colleges and universities are urged to consider faculty development needs. This study detailed how instructor change unfolded in response to a faculty development program intended to enhance the use of instructional technologies. The program was designed to enable faculty to adopt the innovation of using advanced technologies to enhance teaching and learning processes. The study was grounded by the Concerns-Based Adoption Model (CBAM), first proposed by Hall, Wallace, and Dossett in 1973. CBAM is a widely used framework that provides three ways to assess instructor response to an innovation: concerns about the innovation (assessed via the Stages of Concern Questionnaire), levels of use of the innovation (assessed via the Levels of Use interview), and quality of the implementation of the innovation (assessed via the Innovation Configurations methodology). The researcher generated overall CBAM profiles for faculty participants based on concerns data gathered over eight months. Four faculty change patterns emerged from analysis of these profiles, enabling selection of a sample group for Innovation Configurations assessment and intense retrospective interviewing based on the Critical Incident Technique, developed by Flanagan in 1954, for triangulating and clarifying the CBAM findings. Findings from this study will be useful for launching and sustaining future faculty development efforts, and thus point to strategies that can improve the undergraduate experience. CBAM studies are most often conducted at the K-12 level; this study also provides recommendations for the use of the methodology in higher education.

#188 1:45 pm
The Effects of Instructor Immediacy in Online Learning Environments
Maria Schutt, Educational Technology
Brock Allen, Division of Undergraduate Studies

Several studies in the communication literature have indicated that instructor immediacy is associated with learning outcomes, satisfaction, and motivation. However, few of these studies were conducted in distance learning settings. This study examined the effects of instructor verbal and nonverbal immediacy behaviors on student perception of instructor immediacy and social presence in two online, computer conferencing environments: (a) video and audio with text chat and (b) audio with text chat. In addition, this study examined the effect of immediacy behaviors on learning outcomes as indicated by immediate and delayed posttest scores. To experimentally test the effects of instructor immediacy behaviors (high vs. low) and delivery modality (audio vs. video) 433 students enrolled in an undergraduate psychology course at SDSU were randomly assigned to one of four groups. Each group viewed a different version of a scripted and recorded 20-minute online lesson on current perspectives in psychology. Students who viewed the high-immediacy sessions indicated significantly higher perception of instructor immediacy and social presence than students who viewed the low-immediacy sessions. Students who viewed the high-immediacy video session indicated the highest perception of instructor immediacy and social presence. The results also showed that there was a significant difference in learning outcomes as indicated by immediate and delayed posttest scores between students in the high-immediacy audio group and the low-immediacy video group. A correlation analysis revealed a significant positive relationship between perceived instructor immediacy and perceived instructor social presence. Further, a regression analysis revealed that instructor immediacy significantly predicted social presence. These findings have significant implications for institutions of higher education that are selecting computer conferencing tools and training faculty to deliver courses online. In addition, this study lays the groundwork for future research in this area and potentially creates a greater awareness regarding the effects of instructor immediacy in online learning environments.

#189 2:00 pm
E-Coaching in Organizations: A Study of Features, Practices, and Determinants of Use
Rebecca Frazee, Educational Technology Leadership
Allison Rossett, Educational Technology

The vitality and expertise of the workforce is a growing concern for organizations struggling to develop, retain, and compete for top performers from an increasingly global, young, and mobile
workforce. Increasing attrition, technological advancements, work complexity, and telecommuting press organizations to align learning and work in order to facilitate smart choices and continuous improvement. Research suggests that traditional instructor-led training is not sufficiently effective as organizations shift to global, flexible, work-based, and on-demand solutions that blend classroom delivery, e-learning, performance support, coaching, and e-coaching. Coaching is a more personal and tailored intervention used to improve job satisfaction, performance, and results. Technology-enabled “e-coaching” (distance coaching, telemessaging) allows anytime, anywhere communication by phone, email, web-conferencing, text chat, and discussion boards for some or all coaching activity. E-coaching may augment or supplant traditional face-to-face coaching. However, little is known about how e-coaching is used in organizations today. The present study explores e-coaching technologies, practices, and factors influencing its use and success across settings, audiences, and purposes. Mixed methods data collection included a web-based survey of over 200 workplace learning and performance professionals, plus semi-structured telephone interviews with 20 e-coaches from corporate, higher education, K-12, military, government, and non-profit settings across the globe. Based on preliminary analyses, almost half of respondents (45.5%) reported that their coaching was primarily conducted face-to-face, and 20% reported that their coaching was primarily done virtually. Significant differences by amount of e-coaching were found for coaching topics, purposes, audiences, sources, and how coaching was positioned. Factors based on individual traits, organizational context, and coaching purposes were found to predict e-coaching level, depth, breadth, and success. Findings from this study will help practitioners and academics to make better decisions about when and how to deploy e-coaching.

Session B-6
Oral Presentation:
Computer Science and Bioinformatics
Friday, February 29th, 2008, 1:15 pm
Location: Chantico

#190 1:15 pm
Providing Vision and Navigation Features to a Humanoid Robot
Christian Peñaloza, Computer Engineering
Yusuf Ozturk, Electrical and Computer Engineering

Our project consists in the development of a client-server system capable of controlling a humanoid robot through a wireless network. The goal of this project is to provide the robot with a vision system that detects color objects and computes a navigational path. Using the commercial available toy, RoboSapiens by Wow Wee toys, we added vision capabilities by attaching a mobile computer with a camera. Through a wireless connection, the mobile computer transmits images and receives navigation commands. The server then processes the images received from the mobile computer and identifies color objects. After computing the objects parameters, the navigation algorithm determines a walking path towards the object. Finally, action commands are transmitted to the mobile computer, which are then emitted to the robot via infrared signals. Currently, the robot is capable of detecting a red object, calculate its parameters, and walk towards it. Based in our results, we can conclude that our approach was efficient enough to guide a robot towards its target.

#191 1:30 pm
Automatic Detection of Free-ranging Blue Whales’ D and B Calls in the Presence of Multiple Cetacean Species
Shyam Kumar Madhusudhana, Computer Science
Marie A. Roch, Computer Science

Acoustic based methods of monitoring marine mammals are complementary to visual methods and have been used for the purpose of studying behavioral patterns. Blue whales (Balaenoptera musculus) produce at least three types of tonal calls and one pulsed call. Due to the very low frequencies, high variance in call duration and sweep rates, adaptation of existing algorithms is a non-trivial task and context appropriate heuristics are required. We present (i) a frequency based algorithm for tracking the frequency contours in the tonal calls, and then (ii) a detector-classifier that uses the obtained contours to detect and classify the calls of interest. Contour tracking is performed over two passes. In the first pass, set of peak energy frequencies are identified for each frame in the spectrum. Peaks from the preceding frame within a pre-defined frequency distance from peaks in the current frame, together form a unit step in a potential candidate contour. Peak frequency pairs across all consecutive frames are considered as candidate call contours. During the second pass, we trace through candidate contours, applying domain specific heuristics, identifying the best contours. The detector-classifier is developed specifically for identifying the blue whale D and B calls. It utilizes rules and heuristics developed based on statistical information obtained from general patterns of these contours and on unique characteristics of these classes of calls including sweep rate, call duration, energy content, etc. When evaluated on a randomly chosen segment of recordings, the algorithm had a recall of 90% in a 60 minute sample. The precision was 76%, with 18 false positives. An implementation in Matlab runs at a real-time factor >40x. Preliminary testing of the detector-classifier with the chosen segment showed 100% accuracy in terms of correct detection, with only 2 false positives out of over 35 downswept fin whale calls present.
A Static Data Placement Strategy towards Perfect Load-balancing for Distributed Storage Clusters
Deepti Madathil, Computer Science
Tao Xie, Computer Science

Our project consists in the development of a client-server system capable of controlling a humanoid robot through a wireless network. The goal of this project is to provide the robot with a vision system that detects color objects and computes a navigational path. Using the commercial available toy, Robosapiens by Wow Wee toys, we added vision capabilities by attaching a mobile computer with a camera. Through a wireless connection, the mobile computer transmits images and receives navigation commands. The server then processes the images received from the mobile computer and identifies color objects. After computing the objects parameters, the navigation algorithm determines a walking path towards the object. Finally, action commands are transmitted to the mobile computer, which are then emitted to the robot via infrared signals. Currently, the robot is capable of detecting a red object, calculate its parameters, and walk towards it. Based in our results, we can conclude that our approach was efficient enough to guide a robot towards its target.

Comparison of Learning Schemes for ANN QSAR Models in HIV Drug Design
Akmal Aulia, Computational Sciences
Sunil Kumar, Electrical and Computer Engineering

Recently, there have been numerous findings on the developments of new HIV drug candidates with various inhibitory activities. These activity variation correlates to structural changes among the drug candidates. Studies involving constitutional, electrostatic, geometrical, quantum, and topological descriptors correlated with the activity are called Quantitative Structural Activity Relationship (QSAR). The large number of both the drug candidates and the associated descriptors makes it difficult for the traditional regression techniques to handle the data accurately in QSAR. Thus, it is necessary to use other methods to gain insights about these relationships. The use of machine learning techniques for structure-activity correlation has vastly increased over the past few years, due to the high accessibility of biological data and the increasing demand for more accurate and interpretable models for pharmaceutical development. This poster aims to present QSAR study on a class of HIV protease inhibitors utilizing evolutionary computation (Genetic Algorithms) and machine learning techniques (Neural Networks). In this study, comparison studies were performed, applying two different learning schemes for Neural Network training, namely gradient descent with momentum and scaled conjugate gradient. Our results illustrates that, not only that the scaled conjugate gradient has less time complexity, but also it has better accuracy than the results obtained using gradient descent with momentum. Other learning schemes are also being explored.

A Framework for Evaluating H.264 Video Streaming over 802.11 Wireless Ad-Hoc Networks
Kashyap Kambhatla, Computational Sciences
Sunil Kumar, Electrical and Computer Engineering

Video communications are gaining popularity in different networks like cellular and wireless LAN, and therefore also play an important role in present and future wireless ad hoc networks. However video streaming over mobile wireless ad hoc networks is very challenging as video is sensitive to packet loss due to node mobility and weak links attributed to wireless ad hoc networks. A key requirement for successful deployment of multimedia applications in multi-hop wireless networks is the ability to provide acceptable video quality even under a highly dynamic and unfriendly environment (due to frequent node/link failure, interference, fading and so on). In this paper we discuss a framework, which facilitates the transmission of video over multi-hop wireless ad hoc networks using different routing techniques such as DSR, DSDV and AODV. Mobile ad-hoc nodes also have constrained buffering and power resources. Through this framework we analyze the variation in the received video quality and peak signal to noise ratio (PSNR) for videos of different resolutions (QCIF, CIF, etc) at different frame rates (5fps, 10fps, 15fps and 30fps) and bit rates. Increasing the number of video sources and other overhead traffic such as voice, ftp downloads etc., in fixed density network (fixed number of nodes) increases buffer utilization in intermediate routers. This may cause congestion in the ad hoc nodes along the most favored routes resulting in video packets being dropped. On the other hand the large size of the video causes a large number of packets to be generated dwindling the throughput of other applications like voice (e.g. VoIP) being supported by the wireless ad hoc network. Through simulations we illustrate the deterioration in received video quality /PSNR values and impresses upon the need to develop network adaptive cross layer protocols working on transport, routing and the medium access control (MAC) layers to reduce the losses due to mobility and buffering, and improve the received video quality.
#195 1:15 pm

**Synthesis and Cytotoxicity of di-Sansalvamide A Macrocycle Derivatives**

Melinda Davis, Chemistry  
Shelli McAlpine, Chemistry

Less than 20% of pancreatic cancers respond to current chemotherapeutic agents, and as the fifth most deadly cancer in the U.S., it is essential to devise new treatments in order to selectively target this cancer. Five C-2-symmetrical decapeptide derivatives of the natural product pentapeptide Sansalvamide A were made using a succinct convergent synthesis. These analogues share no structural homology to current cancer drugs, are cytotoxic at levels on par with existing drugs treating cancers, and demonstrate selectivity for drug-resistant pancreatic cancer cell lines over noncancerous cell lines. Of these five derivatives, one compound showed exceptional cytotoxicity with sub-nanomolar IC50 values as well as a 33-fold selectivity of cancer cell lines over normal skin fibroblasts. These molecules are excellent chemotherapeutic leads in the search for new anticancer agents.

#196 1:30 pm

**Synthesis and Biological Evaluation of FR235222 Derivatives Serving as Histone Deacetylase Inhibitors**

Erinprit Singh, Chemistry  
Shelli McAlpine, Chemistry

The FR235222 structure represents a novel scaffold that inhibits human histone deacetylases (HDACs). HDACs regulate transcription of genes and represent a promising class of anticancer agents. In pancreatic cancers, HDACs are up-regulated and inhibiting HDACs may lead to the control of cell growth. This project outlines the synthesis of 6 novel FR235222 derivatives, investigating a novel binding element, guanidine, as a metal coordinator in HDAC inhibitors. Further, it is demonstrated that these derivatives exhibit cytotoxicity that parallels their ability to inhibit deacetylase activity, and that the most potent compounds maintain an L-Phe at position 1 and a D-Pro at position 4. Finally, it is shown that a guanidine unit can be utilized successfully to inhibit HDAC activity, leading to cytotoxicity against the pancreatic cell line BxPC3.

#197 1:45 pm

**Characterization of Drosophila Relish phosphorylation in vitro**

Michaela Norrbom, Biochemistry  
Tom Huxford, Chemistry

NF-κβ is a transcription factor that is involved in regulating genes including those involved in immune and inflammatory responses, growth and development, and cell death. Understanding the regulation of this pathway is important because its misregulation can lead to cancer, autoimmune diseases, or viral proliferation. The drosophila NF-κβ-like transcription factor Relish is highly conserved in its primary sequence to the p100 precursor of the mammalian NF-κβ p52 subunit. By studying the activation of Relish in the drosophila system we can better understand the human NF-κβ pathway. Relish is activated by endoproteolytic cleavage of its C-terminal IκB-like region allowing for the N-terminus, containing the DNA-binding Rel homology domain, to enter the nucleus. In order for activation the C-terminus must be phosphorylated by an upstream kinase known as IKKβ. A series of steps follow including Relish’s proteolytic cleavage, separating the N-terminal and C-terminal fragments, by a caspase-like protease called DREDD. We are in the process of identifying the serine residues that are involved in its phosphorylation by site-directed mutagenesis and in vitro kinase assays. Our results indicate that drosophila IKKβ specifically phosphorylates the C-terminus of Relish at a site that is different than human IKK specificity.

#198 2:00 pm

**Observation of Anomalously High Order Kinetics in the Simplest Reaction Between a Gas and a Semiconductor Surface: D2 – Si(100)**

Mark Kottke, Chemistry  
David Pullman, Chemistry

The reaction of deuterium with the silicon(100) surface is the simplest reaction between a gas and a semiconductor, yet the mechanism is still far from understood. The desorption of D2 from Si(100) is known to be 2nd order at low coverages (<0.1 monolayer), which is expected, but changes to 1st order at higher coverages (0.1 to 0.7 monolayer). The switch in kinetic order sparked great interest from experimentalists and theoreticians. Here, we show the kinetics is even more surprising: at high coverages, between 0.8 and 1.0 monolayer, the order is between 2 and 3. This is unexpected for this reaction, let alone any simple chemical reaction, suggesting a complex reaction mechanism involving multiple surface deuterium atoms. To gain further insight into the high coverage reaction mechanism, we are also in the process of measuring the preexponential factor and the activation energy. These experiments are conducted in an ultrahigh vacuum apparatus containing a sensitive quadrupole mass spectrometer.
to detect desorbing deuterium as a function of time and at a constant silicon temperature.

**#199  2:15 pm**

*The Role of Symbiotic Bacterial Siderophores in the Development of Primary Productivity in the Ocean*

Shady Amin, Chemistry
Carl Carrano, Chemistry

The development of primary productivity in the marine environment is critical to the marine food web and the potential sequestration of anthropogenic carbon dioxide. While the phytoplankton themselves fix carbon dioxide into biomass, the microbial milieu that surrounds them in the so-called phycosphere, has recently been shown to be critically important to the growth and physiological well being of the algal cells. Indeed, many if not most, phytoplankton cultures cannot be maintained axenically. However, our understanding of the nature of the factor(s) produced by the bacteria and required for algal growth is still in its infancy. One attractive hypothesis concerning the nature of such an obligate interaction that we are pursuing is, that phytoplankton ‘hijack’ iron, an element that often limits their growth, from extracellular siderophores produced by their bacterial associates. Using various analytical, biochemical and spectroscopic techniques, we have isolated and characterized the dicitrate siderophore vibrioferrin (VF) from phylogenetically coherent clades of marine bacteria that were all isolated from geographically diverse strains of phytoplankton. In addition to functioning as a siderophore for the bacterial strains that produce it, VF exhibits a number of unusual properties including weak iron binding, considerable affinity for the element boron, and most surprising, extreme sensitivity of its iron complex towards photoredox reactions. The unique features of VF may provide important clues about the nature of the interaction between phytoplankton and their associated bacteria.

**#200  2:30 pm**

*Development of Bifunctional Ligands and Catalyst for Alkene Isomerization and its Application to Deuteration*

Reji Nair, Chemistry
Douglas Grotjahn, Chemistry

Numerous methodologies are known using the ability of transition metal complexes to migrate double bonds. Alkenols are known to isomerize to enols which tautomerises to give carbonyl compounds. However, whereas many catalysts are capable of isomerizing allylic alcohols, few are able to isomerize more remote double bonds. A part of the Grotjahn research group is directed towards the synthesis of heterocyclic phosphines with hindered alkyl or aryl groups. These phosphines (ligands), when added to a solution of a ruthenium precursor, [CpRu(CH3CN)3]+ PF6-, form chelated complexes. Screening of these chelated complexes revealed one complex as the overall best catalyst. Notable performance of the best catalyst includes formation of predominantly the E-isomer, and an alkenol was converted to an aldehyde. With 2 mol % and 70°C heat the alkene was isomerised to give more than 95% yield of the product. The increase in isomerization rate caused by the heterocycle ranges from 300 to 3000. The importance of the heterocycle in the phosphines to impart catalysis, characterization of the most efficient catalyst for alkene isomerization, and the ability of the catalyst as a useful tool for deuteration based on a mechanistic study will also be discussed.

**#201  2:45 pm**

*H/D Exchange Catalyzed by Bifunctional N-Heterocyclic Carbene Complexes*

Zephen Specht, Chemistry
Grotjahn, Chemistry

Carbene complexes such as the second-generation Grubb’s catalyst have become an important part of the chemical industry. Since Arduengo isolated the first stable N-heterocyclic carbene in 1991, the number of carbene metal complexes has increased dramatically. Here we report the creation of two new N-heterocyclic carbene metal complexes, featuring pendant base(s) on the imidazole nitrogen(s). Preparations of the imidazolium salt precursors in Scheme 1 will be described. In two steps these salts were then converted to Cp*Ir complexes as shown. In the pyridyl cases, when the pyridine nitrogen is unhindered, coordination of nitrogen occurs. When the nitrogen is hindered by an adjacent t-butyl group, nitrogen coordination is avoided but metalation at carbon occurs. This can be avoided in the fourth pyrimidyl system that incorporates two phenyl groups on the pyrimidine ring. Characterization of the complexes by 1H NMR and X-ray crystallography will be described, as well as preliminary data on catalytic studies.

**#202  1:15 pm**

*Pim-1 Stimulates Cardiac Progenitor Cell Proliferation*

Travis Cottage, Biology
Mark Sussman, Biology

Heart disease is the most common cause of death in the United States, accounting for more deaths than all cancers combined.
Several studies have described the ability of cardiac progenitor cells to regenerate damaged myocardium after myocardial infarction. Strategies enhancing the regenerative abilities of the progenitor cells must be developed to increase restoration of the heart. Pim-1, a serine/threonine kinase has been found in several cell types to promote cell growth and survival. In this study, we describe the ability of animals constructed to overexpress Pim-1 (Pim-wt) to have an increase in cardiac progenitor cell (CPC) proliferation. Specifically, we found that CPCs express Pim-1 in non-transgenic (NTG) control hearts during the development of the myocardium as well as after the heart is subjected to an acute myocardial infarction. Once we determined that Pim-1 is expressed in the CPCs of NTG hearts we examined the CPCs rate of proliferation. It was found that developing animals (2 days - 2 weeks postnatal age) with a cardiac specific overexpression of Pim-1-GFP fusion protein (Pim-wt) had an increase in proliferating CPCs compared to NTG controls. The effect of Pim-1 on CPC cycling was then examined in the context of myocardial infarction (MI). Pim-wt and NTG animals were given acute myocardial infarctions and cycling CPCs were analyzed. Similar to the developmental data Pim-wt animals had an increase in cycling CPCs after infarction. In conclusion we find that Pim-wt animals have an increase in CPC proliferation, which in the context of MI may enhance myocardial regeneration ultimately leading to an increase in survival.

#203 1:30 pm
Transcriptional Induction of a Prototypical ERSR Protective Gene upon Simulated Ischemia
Shirin Doroudgar, Cell and Molecular Biology
Christopher C. Glembotski, Biology

Cellular accumulation of misfolded proteins plays an important role in a number of age-related diseases. It has recently been found that the accumulation of misfolded proteins can also contribute to vascular and cardiac diseases. Even under normal cellular conditions, protein misfolding takes place during synthesis on free ribosomes in the cytoplasm or on endoplasmic reticulum ribosomes. Cellular stresses that perturb the folding of proteins can lead to the accumulation of misfolded proteins and to potential cellular dysfunction and pathological consequences. One of the pathways activated upon accumulation of misfolded proteins is the endoplasmic reticulum stress response (ERSR). Simulated ischemia, resulting in changes in the ER that hinder protein folding, has been shown to activate ERSR in the heart. However, the mechanisms by which down stream effectors are activated remain largely unknown. The ER transmembrane protein, ATF6, a primary sensor of misfolded proteins, is cleaved during ER stress. After its cleavage, ATF6; becomes a potent transcription factor that facilitates protein folding by inducing ER-resident chaperon proteins, such as GRP78. In this study, we determined that GRP78 levels increase during simulated ischemia, and that this increase is due to transcriptional induction of the gene. Neonatal rat ventricular cardiac myocytes, subjected to simulated ischemia exhibited increased ATF6 cleavage, GRP78 promoter activation, and increased GRP78 mRNA levels. When cells were infected with a recombinant adenovirus (Adv) encoding dominant-negative ATF6 (Adv-ATF6:dn), GRP78 promoter activity was reduced to basal levels. Furthermore, disruption of ERSE2 in the GRP78 promoter resulted in the greatest attenuation of promoter activity, and also extinguished the ATF6 binding to ERSE2 as shown by electrophoretic mobility shift assay (EMSA). These results indicate that a typical ER stress protective gene is transcriptionally activated during simulated ischemia through ER stress elements in the promoter.

#204 1:45 pm
Notch Signaling in Adult Mouse Myocardium
Natalie Gude, Cell and Molecular Biology
Mark Sussman, Biology

Introduction: The Notch network regulates multiple cellular processes, including cell fate determination, development, differentiation, proliferation, apoptosis and regeneration. Notch receptor activation generates the Notch Intracellular Domain (NICD), which translocates to the nucleus and turns on target genes, including Hes1. Notch activity influences HGF/c-Met receptor and PI3K/Akt signaling cascades. Delineating connections within the Notch/c-Met/Akt signaling axis in surviving cardiomyocytes following infarction is critical to understanding myocardial stem cell based signaling. Hypothesis: Stimulation of Notch activity by HGF increases activation of Akt, which enhances Notch activation, implicating a bidirectional feedback mechanism between Notch and Akt in border zone cardiomyocytes. The impact of HGF on Notch signaling and vice versa was examined in mice subjected to myocardial infarction and in cultured neonatal rat cardiomyocytes (NRCMs). To test a potential cardioprotective role for Notch activity in myocardium, NICD expressing adenovirus was injected into mouse hearts following infarction, and function was assessed by echocardiography and hemodynamic measurements. Results: Notch1 is activated in border zone cardiomyocytes coincident with nuclear c-Met. Intramyocardial injection of HGF enhances Notch1 and Akt activation in adult mouse myocardium. NRCMs treated with HGF or insulin exhibit increased levels of Notch effector Hes1 in immunoblots. NRCMs infected with NICD show a fourfold increase in phosphorylated Akt, and infarcted hearts receiving adenoviral NICD exhibit better function after six weeks then vehicle and EGFP virus injected controls, implicating Notch signaling in a cardioprotective role following cardiac injury. Conclusion: Notch activation in cardiomyocytes is mediated through c-Met and Akt survival signaling pathways, and Notch1 signaling in turn enhances Akt activity. This suggests a positive
survival feedback mechanism between Notch and Akt signaling in adult myocardium following injury.

#205 2:00 pm

**Lentiviral Gene Delivery of Pim-1 to Cardiac Progenitor Cells Repairs Infarcted Myocardium**

Kimberlee Fischer, Cell and Molecular Biology
Mark Sussman, Biology

Currently there remains little in the way of treatment to repair and replace the loss of functional myocytes caused by heart disease. Given current limitations of repairing heart tissue, we aim to repair damaged heart tissue through lentiviral delivery of Pim-1, a cardio-protective gene, to cardiac progenitor cells. Using genetically altered progenitor cells we intend to both increase the number of progenitor cells available, a current limitation in stem cell therapy, as well as enhance the functional improvement in the mouse heart over non-genetically modified cells. Currently, I have finished the first of several long term (3 month) experiments that monitor the recovery of infarcted mice that have had Pim-1 modified progenitors cells intramyocardially injected around the border zone. Our current results show that after 13 weeks mice injected with Pim-1 modified cardiac progenitor cells exhibited an increased EF and FS as compared to mice injected with unmodified cells. Continued examination with hemodynamic measurements showed that Pim-1 injected mice had greater functional recovery as compared to unmodified cells and PBS injected mice. In fact, we have shown that unmodified progenitor cells do not allow for long term functional recovery. We have shown that unmodified cells decrease in functional recovery to the point where they were not statistically different than PBS injected controls, while Pim-1 modified cells continued to show improvement with no decrease in functional improvement even after 12 weeks. Our results indicate that modification of progenitor cells with exogenous Pim-1 protein provides substantial improvement in the repair of damaged heart tissue. Furthermore, these studies provide some of the first long term evidence showing that unmodified progenitor cells deteriorate over time while Pim-1 modified cells lead to sustainable improvement of damaged heart tissue.

#206 2:15 pm

**Progenitor Cells Isolated From the Myocardium Can Be Grown in Culture and Differentiated to Express Cardiac Markers In Vitro**

Brandi Bailey, Cell and Molecular Biology
Mark Sussman, Biology

After decades of research and attention, heart disease is still the leading cause of death in the United States. Surgical and drug interventions have been very well developed but have not been able to effect a long term cure of the consequences of a heart attack. Cell based therapies have been recently proposed as an additional treatment for a heart attack in order to stabilize heart function and reduce the incidence of heart failure. Specifically, there exists a population of undifferentiated cells in the heart that express tissue stem cell markers, such as c-kit, that have been shown to respond to a myocardial infarction. I hypothesize that these c-kit+ cells in the heart are indeed cardiac progenitor cells. I can isolate them from a mouse heart using c-kit expression; grow them in culture and characterize them for expression of cardiac markers. These undifferentiated cells can be isolated from mice of various genetic backgrounds and ages; grown in culture and induced to differentiate into a cardiomyocyte phenotype. The methods I use are cell culture, confocal microscopy and a co-culture differentiation system with Neonatal Rat Cardiomyocytes (NRCMs). My results show that these cardiac progenitor cells express some cardiac markers, such as Mef2c and Gata4, in the undifferentiated state, which indicates their commitment to a cardiac cell lineage. Using the co-culture methodology, I show that cardiac progenitor cells in culture can interact with NRCMs in culture and be induced to express cardiac structural proteins, indicating their commitment to become cardiomyocytes. In conclusion, because cardiac progenitor cells are amicable to isolation, cell culture and differentiation to a cardiomyocyte phenotype, they are candidates for cell based therapies for the heart.

Session B-9

Oral Presentation: Nutrition, Perceptions, and Health
Friday, February 29th, 2008, 1:15 pm
Location: Quetzalcoatl B

#207 1:15 pm

**Patient Correlates of Treatment Engagement Following Initial Evaluation Among Patients with Co-occurring Disorders**

Christopher Fowler, Psychology
Chad Bousman

Engagement in treatment continues to be of critical concern in public mental health settings as evidenced by the high percentage of missed appointments beyond the initial evaluation. The purpose of this study was to examine the correlates of engagement in treatment following initial evaluation among patients with co-occurring disorders (COD) at a community outpatient psychiatric service (OPS). The Addiction Severity Index-Multi-media Version (ASI-MV) was used to collect demographic and psychosocial data from 122 patients at intake assessment. Chi-squares and independent Mann-Whitney U-Tests were utilized to examine the differences between engagers and non-engagers in medication management (MD), group therapy (GT), and individual
Psychotherapy (PT) within the first 6 months following their initial intake evaluation. Among the 122 COD patients in this study, 35% identified as non-white, 39% were female and the mean age was 40 years. Over half (56%) of CO patients did not engage in MD. MD non-engagers were significantly more likely to be mandated to treatment, and to view psychological problems as well as importance of treatment as none-slight as compared to treatment engagers. GT non-engagers (17%) were more likely to be non-white, and report lower levels of education. Psychotherapy non-engagers (12%) were more likely to be non-white, currently married. Within this COD population, engagement in MD appears to be the most problematic. Further, non-white clients appear to have lower rates of engagement across treatment modalities.

**#208 1:30 pm**

*Lifetime Experiences with Racism and Perceptions of Barriers to Participation in Clinical Trials in African American Women*

Rubie Blue, Psychology
Vanessa Malcarne, Psychology

African Americans suffer from health disparities across a number of major diseases and yet they are underrepresented in trials testing new treatments and interventions. Although obstacles to African American participation in clinical trials have been examined in previous studies, few studies have systematically measured these obstacles in larger community samples; and few studies have examined whether experiences with racism may influence clinical trials participation. Two hundred and twenty nine African American women (mean age = 42) recruited from various community sites completed surveys about their perceptions of barriers to participating in clinical trials (Barriers to Clinical Trials Participation Scale; BCTP), and their experiences with various aspects of racism in their lives (Schedule of Racist Events [SRE]; life experiences). The BCTP yields four subscales: Personal Benefits; Institutional Trust; Clinical Trials Knowledge, and Community Support for Trials Participation, as well as a total score. Participants endorsed mistrust most strongly as a barrier to participation, followed by lack knowledge, and perceived personal benefits. Lack of community support was rated lowest as a barrier to participation. Correlations between BCTP subscales and items from the SRE representing lifetime experiences with racism showed that stronger perceptions of barriers (primarily mistrust and lack of knowledge) were significantly associated (p < .05) with lifetime racist experiences with teachers/professors, bosses/supervisors, coworkers/students, helping professions, people in service jobs, neighbors, friends, and institutions, but not with racism experienced from strangers. These results suggest that the two strongest barriers to clinical trials participation (mistrust and lack of knowledge) are also the two barriers most associated with lifetime experiences with racism, and underscore the difficulty of addressing these barriers with the type of “top-down” educational campaigns that are typically employed by medical research institutions to increase participation of underrepresented groups in clinical research.

**#209 1:45 pm**

*The Effect of Heat on Dark Chocolate and its Biological Function in Serum Lipid Profiles of Rats*

Sarah Reese, Foods and Nutrition
Mee Young Hong, Exercise and Nutritional Sciences

Cardiovascular disease (CVD) is the number one cause of death in the United States. An increasing body of epidemiologic evidence supports the concept that diets rich in antioxidants promote health and attenuate or may delay the onset of CVD. Chocolate, particularly dark chocolate, products have among the highest antioxidant concentrations in relation to other antioxidant food sources (i.e. fruits, vegetables, tea and red wine). However, it is unknown whether exposure to heat (such as hot weather, cooking, and excessive processing) alters the beneficial effects of dark chocolate on CVD risk factors. Therefore, we determined serum lipid profiles in 3 groups (control-no chocolate, regular chocolate and heated chocolate) of Sprague Dawley rats. Body weight gain, food intake, and food efficiency rate were also measured throughout the study. Furthermore, semi-trained human panelists evaluated if heat-manipulated chocolate changes flavor, texture, taste and overall preference. Regular chocolate appeared to be preferred overall when compared to the heat-treated dark chocolate in regards to the sensory preference (p<0.05). Organ weights, including epididymal fat pads, weight gain, and food efficiency ratios were not significantly different between groups. Regardless of heat exposure dark chocolate significantly decreased triglyceride (TG), total cholesterol and low density lipoprotein cholesterol (LDL) compared to the control group (p<0.05). However regular chocolate appeared to have a greater effect on decreasing serum lipid levels than the heat-treated chocolate, suggesting that regular chocolate may contribute qualities that are more favorable in decreasing one’s risk for developing CVD. In conclusion, heat-treated dark chocolate contains but reduced the beneficial effects of regular dark chocolate on CVD risk factors. Supported in NUTR302L class.

**#210 2:00 pm**

*The Role of Nutrition in Mitigating Plumbism and Consequent Cognitive Maladies*

Carlos Medina, Anthropology
Ramona Pérez, Anthropology/ Latin American Studies

In the summer of 2007 I was privileged to be a part of the Oaxaca summer program through the anthropology department’s course in ethnographic field methods. Initiated by Dr. Ramona L. Pérez,
the program’s objective is to eradicate the cases of lead poisoning plaguing the community of Santa Maria, Atzompa. Through the employment of anthropological theory on tourism, a nutrition intervention, and the ethnographic field methods learned concurrent to community work, the program satisfied my yearning to apply my education towards helping others. I conducted research with students from the community’s over populated special education program in order to expand our data on children’s cognition consequent to lead poisoning (and pose suggestions). Working closely with two students from San Diego State University, we organized classes with the children to assess their level of disability and observe how classroom dynamics shape their ability to learn. Resultantly, our observations evidenced multiple cases of Attention Deficit Disorder (A.D.D.), all of which correlated with known effects of lead exposure to cognitive development. Upon researching A.D.D., we identified nutrition and diet to be the best venue for aid, and compiled recipes with the specific nutritional elements believed to ameliorate the effects of lead on human physiology and cognition. These recipes were then handed over to the student’s working in the program’s nutrition intervention, expanding their anthology of recipes to improve this community’s specific deficiencies. My experience in Oaxaca inspired me to apply to San Diego State University’s McNair Scholars Program so that I can further assess the eating habits of the children, and explore methods to making nutrition a greater focus in their lives.

#211 2:15 pm

**Improved Drinking Water Infrastructure, Management and Community Health in Rural Border Indigenous Communities of Baja California**

Paula Stigler, Environmental Health Sciences
Richard Gersberg, Graduate School of Public Health

The majority of indigenous communities in Baja California are located less than one-hundred miles south of the United States-Mexico border. In 2003, a study was conducted to document environmental health practices and linkages between drinking water infrastructure, quality and health in Kumeyaay and Pai Pai indigenous communities in Baja California, Mexico. San Diego State graduate student Paula Stigler trained community health workers to collect water samples and administer health surveys to assess existing drinking water sources, basic sanitation, and illnesses within the communities. A total of 821 surveys were collected from the communities and water quality analysis showed widespread contamination of drinking water with total coliforms and E. coli. Based on these findings, a water infrastructure assessment was designed and information was gathered to evaluate their water infrastructure through sanitary site inspection and water testing. As a result of these studies, two new drinking water systems have been installed in the most at risk communities and additional community capacity building to operate and maintain the systems is ongoing. The Pan American Health Organization (PAHO) has funded an 18 month follow-up study (January 2007), with Ms. Stigler as the P.I. ad Dr. Richard Gersberg as a Co-P.I., examining the correlation between improved drinking water systems and decreased rates of gastrointestinal illnesses in order to demonstrate the applicability of water quality as an environmental health indicator. This presentation will show the progression of these community water assessments and discuss their findings and implications on the community as well as demonstrate a successful model for cross border tribal collaborations. This project is highlighted in the most recent U.S.-Mexico Border 2012 Program report as a major milestone in addressing the needs of the most at risk communities along the border.

#212 2:30 pm

**Strawberries: Is Organic Better than Conventional?**

Fatima Villalobos, Nutritional Science

The increasing demand for organically grown produce creates a need for more understanding about potential differences between organically and conventionally grown produce. The purposes of this study were to determine in strawberries, if differences between organic and conventional growing methods or sampling season existed in hydrophilic antioxidant capacity, texture, or sensory attributes from consumers’ perspectives. Organic and conventional strawberries were obtained from one farm and seven different Southern California grocery chain stores. Antioxidant capacity was measured using the hydrophilic oxygen radical absorbing capacity (H-ORACFL). Sensory attributes were measured by expert panelists (N = 11 in May, N = 8 in August) and firmness was measured with a Kramer Shear Press. 2 × 2 two-way analysis of variance (ANOVA) tests were used to examine differences in mean weight, hydrophilic antioxidant levels, and textual force. Alpha was adjusted using Bonferroni correction and significance was determined at p < 0.017. One-way ANOVAs were used to examine each sensory parameter by growing method and the alpha was set at the Bonferroni-adjusted level of 0.0023 for significance. H-ORACFL values for organic and conventional berries were 37.53 ± 7.63 μmol TE/g and 30.97 ± 9.22 μmol TE/g, and H-ORACFL values for May and August berries were 36.41 ± 9.36 μmol TE/g and 32.09 ± 8.31 μmol TE/g, respectively. Effects due to growing method and sampling season on H-ORACFL values were not statistically significant. In May, organic strawberries were rated as significantly (p < 0.0023) crisper than those grown conventionally. Strawberries in May were significantly (p = 0.0023) firmer than those grown conventionally. Therefore, results demonstrated a relevant, but not significant, trend for higher antioxidant levels in organic strawberries than conventional strawberries. Research with larger sample sizes is needed to determine consistent differences between growing methods or seasons.
#215 3:40 pm

Creating a Unified Design for the Costumes and Puppets of Jungle Book: Margaret Larlham's (SDSU Professor of Theatre) Adaptation of Rudy Kipling's Classic Story

Shirley Pierson, Theatre Design
Denitsa Bliznakova

A young boy becomes lost in Balboa Park and falls through a portal into a magical world populated by animals in Margaret Larlham's Jungle Book. The complex characters and the magical world he encounters present an ideal artistic challenge for me as a costume designer. The adaptation's goal is to make the story accessible for San Diego's diverse families and school children while addressing relevant environmental and social issues through physical theatre, image theatre, dance, music, and puppets. For the costume designer attempting to unify a design through the costumes and maintain their stage functionality, any one of these elements can present challenges, so when all five are combined the artistic challenges multiply. Allowing for flexibility in the design further heightened these challenges, as the adaptation's final script was completed only days before opening night. In order to design and create the costumes and puppets for Jungle Book, Professor Larlham and I collaborated to determine a conceptual world for the characters. The world was to be organic, textural, and imaginatively thought provoking, with contemporary references to the diverse culture of San Diego. In any theatre performance, research provides the foundation for a successful and unifying costume design that immerses the audience into the story's environment and assists in understanding the characters. My research cast a large net to include images and information from multiple cultures, puppetry, fabrications, and animals in order to define and design each character. Providing a way for the human to identify with the animals via costume supported traits and fabrications became an important unifying aspect in the design, while maintaining the textural, organic and avant-garde concept of the production's world. Through the use of scale and fabrication a unified design was actualized for the Jungle Book characters and puppets.

#213 3:00 pm

What the Heck is That! A Brief History of Kinetic Art

Brad Johns, Fine Art: Furniture
Wendy Maruyama, Art Design and Art History

Although it has been only narrowly discussed within fine art scholarship Kinetic Art has an important albeit haphazard history both within and beyond the arts. Beginning with a seventeenth century chess playing hoax, through the lasting popularity of automata and mechanical toys, to the mid-twentieth century American obsession with robots I will show that Kinetic Art carries with it a rich purse of cultural currency. During this presentation I will emphasize the increasing relevance of Kinetic Art as it relates to trends in installation and performance works by artists such as Tim Hawkinson and Rebecca Horn as well as discussing trends in new media arts and motion graphics and how they are fundamentally related to the tradition of Kinetic Art. The final portion of my presentation will reference my own Graduate research project entitled Proxy and will describe how Kinetic Art can and does hold relevance to the contemporary crafts.

#214 3:20 pm

The Innovations of Max Roach through Analysis and Comparative Study

Jeanette Kangas, Music/Percussion/Performance
J. Mitzi Kolar, Music and Dance

Although it has been only narrowly discussed within fine art scholarship Kinetic Art has an important albeit haphazard history both within and beyond the arts. Beginning with a seventeenth century chess playing hoax, through the lasting popularity of automata and mechanical toys, to the mid-twentieth century American obsession with robots I will show that Kinetic Art carries with it a rich purse of cultural currency. During this presentation I will emphasize the increasing relevance of Kinetic Art as it relates to trends in installation and performance works by artists such as Tim Hawkinson and Rebecca Horn as well as discussing trends in new media arts and motion graphics and how they are fundamentally related to the tradition of Kinetic Art. The final portion of my presentation will reference my own Graduate research project entitled Proxy and will describe how Kinetic Art can and does hold relevance to the contemporary crafts.
by organizing social, religious and political philosophies. They appear in all cultures, marking important events and leaving their effects in the hearts and minds of the participants. By bringing together art work created by local artists and pieces from Africa, Native North America and Oceania many cultures and rituals are represented. The pitfalls that frequently develop from these cultural juxtapositions are bridged through the use of ritual theory. Diversity is an important issue within our community. Viewers are prompted to reflect on similarities rather than differences, in the way life is experienced and milestones are marked, while being introduced to cultures and rituals that may be unfamiliar. While visually represented through the exhibition, these ideas are also made more accessible through an accompanying catalogue and educational programs available to the community. Through interaction with the visual arts Rituality builds a foundation upon which appreciation and understanding for the role ritual plays in our lives and in our individual and communal worldviews.

#217 4:20 pm
**Making Connections: A Path To Greater Artistry**
Wyatt Ellison, Interdisciplinary Studies
Martin Chambers, Music and Dance

The purpose of this project is to explore the cause and effect relationship present in the artistic process. Often the intention behind an artistic attempt and the resulting creation differ significantly. This project will demonstrate the artistic tools which assist in bridging the divide, or making connections between, intention and outcome. I will demonstrate and dramatize in a public lecture/performance presentation, the significant connections within the dance, music and theatre mediums. My skills as a collaborator, a teacher, a performer and as an emerging artist are a direct result of recognizing, and then making, connections. The performing arts require the simultaneous use of two different intelligences: the intellectual and the kinesthetic. By conceptualizing my brain and body as one connected whole, my performing abilities in all areas increase significantly. I am also able to connect to other performers (dancers, actors and musicians) with greater finesse. These connections I have made, and will demonstrate in my concert, are essential to an artist, however they are not exclusive to the performing arts. The tools I have attained address the process of changing unhelpful habitual thought patterns and finding greater efficiency in movement. These tools are relevant to everyone, regardless of artistic ambition.

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Session B-11
Oral Presentation: Past and Present Indigenous Communities in the Californias
Friday, February 29th, 2008, 3:00 pm
Location: Casa Real

#218 3:00 pm
**The Material Culture of the Baja California Kumeyaay**
Katherine Sholan, Anthropology
Lynn Gamble, Anthropology

When most people think of the Kumeyaay, they think of the Native American group who occupied San Diego and Imperial Counties before Spanish exploration of Alta California. But, Kumeyaay territory extended far beyond that into Baja California from as far east as Calixico (Mexicali) and as far south as Ensenada, Baja California, Mexico. The Kumeyaay lands were divided in two by the formation of the U.S.-Mexico International Border. The Baja California group is also known as the Southern Diegueño and Tipai Kumiyai. Not much is known about the material culture of these people, who occupied the region well before the Spanish landed in 1769. This project contributed to the efforts to close this gap in knowledge by examining the Kumeyaay artifact and photo collections at the San Diego Museum of Man. Looking through site records as well as collection records, I isolated known Baja Kumeyaay settlements from those of surrounding groups – the Paipai, the Kamia, and the Kiliwa. Also included in the data were artifacts from settlements along the U.S.-Mexico border - Campo, Jacumba, Descanso, and Calexico. Outcomes of this study will assist in the creation of a Baja Kumeyaay museum in Tecate, Mexico; contribute to anthropological and archaeological knowledge; and, perhaps more importantly, help living groups of Baja Kumeyaay, whose ancestral families were dislocated and fragmented by European settlement, know more about their ancestor’s culture. This project was a first step in locating the material remains from previous studies of the region housed in museums all over the United States. Further exploration of these collections is paramount in knowing what has been collected before and that which remains to be examined.

#219 3:15 pm
**From the Bottom Up: Creating a Collaborative Community Museum in Tecate, Baja California**
Kara Johnson, Anthropology
Lynn Gamble, Anthropology

The creation of indigenous community museums in Mexico is a growing movement that embraces not only cultural preservation,
but also cultural growth, sustainability, and the right of people to take an active role in defining and sharing information about themselves. This study is based on the process of creating a new community museum in Tecate, Baja California. The museum will focus on Kumiai culture both past and present, integrating photographs, crafts, and artifacts owned by the community in San Jose de Tecate. There is presently little information about the Kumiai of Baja California available to the public, nor is there much information in current displays about the history and experiences of the Kumiai during the 20th century. This museum will be unique in a number of ways, including its focus on the Kumiai in Baja California, its location within the community, and the number of photographs and personal stories that will be used to describe the history of San Jose de Tecate. In my thesis, I describe the process of researching, organizing, and creating display materials for the proposed museum, and explore some of the unique challenges that arise from such a project. An important aspect to this thesis is my collaboration with the Kumiai through interviewing and conducting oral histories, and selecting the informational and design elements of the exhibit. The museum is intended to be a catalyst for sustainability and cultural interactions among the Kumiai in northern Baja California through the sales of traditional craft items and ongoing workshops and other opportunities for collaboration. The development of the museum will produce not only a cultural addition to the Kumiai community, the Tecate region, and the San Diego area, but will also provide a perspective on anthropologists working with Native communities, creating community museums, constructing community histories, and organizing networks of collaborators.

#220 3:30 pm

**Cultural Revitalization among Indigenous Communities of Baja California**

Michael Wilken, Anthropology
Lynn Gamble, Anthropology

For thousands of years, native peoples sharing closely-related Yuman languages and cultures populated the landscapes that eventually came to be part of southern California and northern Baja California. Over countless generations they learned to wrest a living from the land, managing the various ecosystems through which they traveled on their seasonal round. They participated in extensive trade networks and social exchanges with other indigenous groups of the region and beyond. Today, Baja California’s Kumiai, Paipai, Cucapá and Kiliwa Indians are the only remaining descendants of the peninsula’s original indigenous inhabitants. In spite of their rich cultural heritage and extensive land base, they continuously struggle to survive. Recent efforts to foster cultural revitalization have created new options that native Baja Californians have used to more effectively negotiate their multiple identities as indigenous peoples, Mexican citizens, borderland residents and relatives of the U.S. Yuman tribes. Using applied anthropological methodologies, the author has worked with tribal members to document traditional and modern indigenous culture, to identify indigenous needs and priorities, and to develop activities and programs that respond to those needs. This applied research and activism has led to positive outcomes for Baja California’s indigenous communities including the renewal of ancient ties of kinship, culture and trade that link native populations divided by the U.S.-Mexican border, new options for sustainable economic development and the establishment of community museums. A critical evaluation reflects on processes of cultural change and the need to create long-term, interdisciplinary, cross-sector and culturally-appropriate collaborations to deal with the complexity of contemporary social problems. Ultimately, the future of indigenous identity will depend on external factors including changing governmental policies and the economic realities of the border region, as well as internal factors, primarily the will of the indigenous communities to maintain a distinctive indigenous identity.

#221 3:45 pm

**Food, Medicine, and Healing Roles: Exploring Situational Plant Use among Four Native American Tribes**

Raven Keppinger, Anthropology
Elisa Sobo, Anthropology

For thousands of years, native peoples sharing closely-related Yuman languages and cultures populated the landscapes that eventually came to be part of southern California and northern Baja California. Over countless generations they learned to wrest a living from the land, managing the various ecosystems through which they traveled on their seasonal round. They participated in extensive trade networks and social exchanges with other indigenous groups of the region and beyond. Today, Baja California’s Kumiai, Paipai, Cucapá and Kiliwa Indians are the only remaining descendants of the peninsula’s original indigenous inhabitants. In spite of their rich cultural heritage and extensive land base, they continuously struggle to survive. Recent efforts to foster cultural revitalization have created new options that native Baja Californians have used to more effectively negotiate their multiple identities as indigenous peoples, Mexican citizens, borderland residents and relatives of the U.S. Yuman tribes. Using applied anthropological methodologies, the author has worked with tribal members to document traditional and modern indigenous culture, to identify indigenous needs and priorities, and to develop activities and programs that respond to those needs. This applied research and activism has led to positive outcomes for Baja California’s indigenous communities including the renewal of ancient ties of kinship, culture and trade that link native populations divided by the U.S.-Mexican border, new options for sustainable economic development and the establishment of community museums.
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#222 4:00 pm

Regional Network Analysis Situating Lost Valley in the Inter-Site Landscape
Victoria Kline, Anthropology
Lynn Gamble, Anthropology

The purpose of this study is to analyze possible contact pathways through Lost Valley, San Diego County, California, using the methods of linear network analysis for both real and modeled travel corridors through the San Luis Rey Watershed. I will conduct this study using ArcView 9.2 GIS and aerial photography in combination with digital USGS topographic maps, and previously collected archaeological excavation data, to show the most likely corridors of travel and trade as opposed to least likely avenues of movement using least-cost path modeling. This study will show how prehistoric and protohistoric peoples traveled through the Lost Valley area and how contact networks were likely established and maintained. The modeled travel corridors will be compared to the ethnographic and historic knowledge of the Cupeño who seasonally occupied Lost Valley.

#223 4:15 pm

Better Vision Through Glasses
George Kline, Anthropology
Lynn Gamble, Anthropology

The obsidian debitage collected from a group of archaeological sites clustered around a mountain spring have revealed considerable information through a comprehensive obsidian hydration analysis. Sixty-six separate rind measurements were combined to reveal the occupational durations of these sites around Shingle Spring in Lost Valley, San Diego County. A new Hydration Laboratory was assembled with the intentions of educating anthropology students, and to glean additional information from the archaeological collections currently available for study. This analysis indicates that the archaeological sites in the Lost Valley area were occupied for nearly 6,000 years. This study clearly demonstrates the potential of this new facility to enhance current knowledge of prehistory, and to add new lines of evidence to the archaeological record.

Session B-12
Oral Presentation:
Geotechnical and Environmental Engineering
Friday, February 29th, 2008, 3:00 pm
Location: Chantico

#224 3:00 pm

Effectiveness of Unconventional Adsorbents in Removing Nutrients and Heavy Metals from Water Streams
Shashikanth Gajaraj, Environmental Engineering
Fatih Buyuksonmez, Civil, Construction and Environmental Engineering

Despite the prolific use of activated carbon in water treatment, carbon adsorption remains an expensive treatment process. This has prompted a growing research interest into the development, production and use of low cost alternatives to activated carbon, from a range of carbonaceous and mineral precursors. Many of the starting materials for these replacement adsorbents are from the agricultural or industrial by products. Hence their use as secondary adsorbents contributes to the waste minimization, recovery and reuse. The aim of this research is to draw together the extensive literature, which has developed around the preparation of inexpensive adsorbents, and to provide an assessment of their relevance and suitability in treatment of heavy metals and nutrients from water streams. Different agriculture based unconventional adsorbents like palm fronds, rice straw and garden compost are studied for their retention capacity of heavy metals. Garden compost is then studied for its efficiency in removing and retaining nutrients from water. Garden compost is also suitably amended using zeolites, gypsum and spent ferric chloride sludge to improve its capacity in nutrient removal. Owing to the extensive use of green compost in this research, the leaching characteristics of compost and amended compost in simulated run off is also studied.

#225 3:15 pm

Hydraulic Capacity of Compost Buffers for Treating Nonpoint Source Runoff
Sergio Naranjo, Civil Eng / Water Resources
R. Edward Beighley, Civil, Construction and Environmental Engineering

Agricultural operations, specifically, avocado and commercial nurseries require frequent and significant fertilizing and irrigating which tends to result in excessive nutrient leaching and off-site runoff. The increased runoff contains high concentrations of nutrients which negatively impacts stream water quality.
Researcher has demonstrated that best management practices such as compost buffers can be effective for reducing nutrient and sediment concentrations in agricultural runoff. The objective of this research is to evaluate the hydraulic capacity and of compost buffers. A series of experiments are being performed in the environmental hydraulics laboratory at San Diego State University. A tilting flume 12-m long, 27-cm wide and 25-cm deep will be used. Discharge is propelled by an axial flow pump powered by a variable speed motor with a maximum capacity of 30 liters per second. The experiments are designed to measure the ratio compost mass per flow rate per linear width. Breaking discharge (maximum flow rate the buffer can tolerate without structural failure) are measured. The results from this project will be used to develop guidelines for installing compost buffers along the perimeters of nursery sites and avocado groves in southern California.

#226 3:30 pm

**Plankton Filtration with Compressible Media: Potential for Ballast Water**

Vasiliki Karanikola, Civil Engineering
Julio Valdes, Civil, Construction and Environmental Engineering

Species invasions are one of the most urgent threats to marine ecosystems. The migration of foreign species via ballast water transport by ships intensifies pollution problems due to the ever-growing increase in commerce demand. Most marine species are “flexible” (i.e., non-rigid); therefore standard filtration schemes (developed for rigid filtrate) are not applicable. An innovative technology is introduced that allows the stress-controlled filtration of plankton-size “flexible particles” using compressible filter particles. Research is conducted by utilizing cultivated plankton artemia sp. as the filtrate, and emphasis is placed on determining the filtration efficiency of the system. Experimental results show that the filter can be manipulated to retain plankton “particles” of different sizes and shapes. A direct application of this technology is an environmentally-friendly and economically beneficial filtration system for ballast water in ocean vessels.

#227 3:45 pm

**Hydraulic Geometry Relations for the Amazon Basin Based on Satellite Imagery, Stage-discharge and Hydrologic Characteristics**

Venkat Gummadi, Civil
R Edward Beighley, Civil, Construction and Environmental Engineering

Modeling fine scale spatial and temporal processes of the hydrologic cycle over continental to global extents is vital for assessing the potential impacts of climate and land use change on global water resources and related systems. Significant advancement in understanding and predicting the magnitude, trend, timing and partitioning of terrestrial water stores and fluxes requires the development of methodologies and knowledge for extracting representative hydraulic geometries from remote sensing data products and field data, suitable for estimating inundation characteristics and water storage changes which are limited for much of the globe. This research proposes to develop relationships between drainage characteristics and channel/floodplain geometries in the Amazon Basin by combining stage-discharge data at select streamflow gauging stations and measuring channel/floodplain widths from remote sensing. The drainage areas of the gauging stations range from 730 to 4.8 million sq km. Preliminary results indicate that channel widths can be predicted using drainage area ($R^2 = 0.80$).

#228 4:00 pm

**Sorption-induced Swelling of Tire Derived Aggregate: Experimental Study**

Vicky Anh Ngo, Civil Engineering
Julio Valdes, Civil, Construction and Environmental Engineering

Utilization of recycled tire rubber in civil engineering systems has been a growing trend over the past few years. Of particular importance to this research is the fact that tire rubber swells due to sorption of organic oils and solvents by polar and molecular bonding even after long-term compression. This research documents an experimental study conducted to examine the time-dependent, one-dimensional swelling response of oedometrically loaded granular packs composed of coarse tire derived aggregate (TDA) inundated with organic liquids. The results indicate that the extent of swell and the swelling rate are dependent on the stress imposed before inundation and the fluid type. The swelling of granulated tire rubber has potential implications for infrastructure stabilization, waste containment systems, sealing, filtration, and hydrocarbon-water separation.

#229 4:15 pm

**Effects of Crushing in Soils Due to Changes in the Loading Process**

Lilian Rodriguez, Civil Engineering
Julio Valdes, Civil, Construction and Environmental Engineering

Particulate crushing affects the most important properties of soil, including stress-strain behavior, volume change, and variations in permeability. Therefore, research on particle breakage is important in Geotechnical Engineering. In particular, past experimental studies have shown that, under increasing loads, an initial size distribution of particles tends towards a self-similar fractal distribution. This is assuming there is no interruption or alteration in the soil sample during loading. This research documents...
an experimental conducted to explore the evolution of particulate breakage for laterally-constrained sands subjected to a variation of stress paths. In the proposed experiments, the effect of disturbing the soil sample during loading will be explored, and also, the effect of unloading and reloading will be examined.

Session B-13
Oral Presentation: Political and Ethical Issues
Friday, February 29th, 2008, 3:00 pm
Location: Council Chambers

#230  3:00 pm
**Human Reproductive Cloning & Parfit’s Non-identity Problem**
Joyce Havstad, Philosophy
Mark Wheeler, Philosophy

Proponents of human reproductive cloning do not dispute that cloning may lead to violations of clones’ right to self-determination, or that these violations could cause psychological harms. But they proceed with their endorsement of human reproductive cloning by dismissing these psychological harms mainly in two ways. The first tactic is to point out that to commit the genetic fallacy is indeed a mistake, and the second is to invoke Parfit’s non-identity problem. The argument of this paper is that neither approach succeeds in removing our moral responsibility to consider and to prevent psychological harms to cloned individuals. In fact, the same commitment to personal autonomy that generates the right to reproduce by means of cloning also creates the need to appropriately limit that right. Successful and moral human reproductive cloning ought to involve a careful and balanced consideration of both the relevant aspects of personal liberty — the parents’ right to reproductive freedom and the cloned child’s right to self-determination.

#231  3:15 pm
**The Sinister Science of the Human Betterment Foundation and a Rhetoric of Motives**
Kathy Swift, Rhetoric and Writing Studies
Cezar Ornatowski, Rhetoric and Writing Studies

Although scholarship in the history of the eugenics movement in the U.S. has grown appreciably in the past decade, nevertheless much work remains to be done. Historians such as Paul Lombardo, Stefan Kühl, and Edwin Black, point to the dearth of available information on California eugenic organizations as serving as an impediment to an understanding of the scope and duration of the eugenics movement as a whole. While the national rate for state legislated sterilizations was about 60,000, California accounted for approximately 20,000 of these, or about one third of the national average. My thesis takes the technical papers of the Human Betterment Foundation (HBF) of Pasadena, California, as its artifact for analysis in an examination of a socio-epistemic rhetoric resulting in the institutionalization of scientific racism and elitism in California state policy. Ultimately, it is my goal to shed light on the shift in rhetoric of the HBF following the defeat of Nazi Germany in order to depict the manner in which alleged reform eugenicists adapted a revised ethos, pathos, and logos in response to changing public opinion. In this regard, I agree with Barry Mehler, Garland Allen, and Alexandra Minna Stern, who have all been critical of the past historiography which presents the defeat of Nazi race hygiene programs as the cause for the “bifurcation” of the movement into “reform” and “mainline” eugenicists, an unconvincing dichotomy that hinders more than explains the continued prevalence of hereditarian orthodoxy in American public discourse. The HBF’s transmutation from eugenic sterilization to marital counseling, family planning, population control and sociobiology, is illustrative of the ideological and rhetorical shift in strategy of early eugenicists and calls into question any appreciable difference in motives between so-called reform and mainline eugenicists.

#232  3:30 pm
**American Political Traditions and the Social Science Method: Reinterpreting the Work of Richard Hofstadter**
Matthew June, History
Lawrence Baron, History

Historians have correctly categorized Richard Hofstadter’s work, placing it within the lineage of the Marxist school of Charles Beard and other Progressive historians. However, critics have often misinterpreted Hofstadter’s later books, viewing them from the perspective of his contemporary political motivation. The research presented in this study attempts to refute that interpretation, arguing that, early in his career, Hofstadter became dissatisfied with the dialectical economic framework employed by his predecessors. Developing a more complex framework for exploration of the American political tradition, which could deepen our understanding of the past, became Hofstadter’s primary motive. Hofstadter expressed this idea personally, telling an interviewer that he found it “important…to devise techniques and approaches that will give new insights into both the past and present.” In this sense, The Age of Reform was the first of three books in which Hofstadter ultimately developed a complex framework for understanding political culture. Thus, Age of Reform used the history of reform movements to delineate a framework capable of evaluating the entire span of American political tradition, unconcerned with the intricacies of historic reality. Hofstadter continued his use of symbolic interpretation and “status politics” in Anti-Intellectualism in American Life, which
was published in 1963. The book examined various instances of hostility toward intellectuals and original thought within religion, politics, business and education. The Paranoïd Style in American Politics, published in 1965, was the final book from this period in Hofstadter’s career. In this book, he was concerned “with the way in which ideas are believed and advocated” irregardless of “the truth or falsity of their content.” Using this new interpretation, my presentation will evaluate these three significant books with the goal of providing new insight into the work of Richard Hofstadter and its ultimate contribution to American historiography.

#233 3:45 pm

**Authoritarianism and Democracy in Twenty-first Century Mexico: Subnational Authoritarian Enclaves and the Territorial Unevenness of Democracy**

Reynaldo Rojo Mendoza, Latin American Studies
David Carruthers, Political Science

Most of the scholarship addressing Mexico’s recent change of regime and ongoing democratization process has had national-level biases. With few exceptions, scholars of Mexico have centered their attention on national-level processes and units of analysis. The few studies that have actually focused their efforts on subnational politics tend to neglect local processes of continuity and change, opting for center-periphery approaches. For example, little attention has been given to the impact that local patterns of state-society relations, clientelism, traditional political practices, and caciquismo have on Mexico’s national-level political processes. These local factors directly influence national and subnational politics and, in some cases, obstruct democratization at both levels. The persistence of subnational authoritarian enclaves—or “local fiefdoms” in the words of Chappell Lawson—is one of the many obstacles hindering the fulfillment of democracy in Mexico. In the present study, I aim to shift the focus of Mexican politics from the national to the subnational level. My particular objective is to situate Mexico’s regime change and national democratization process on a local context explaining, on the one hand, the existence of subnational authoritarianism and, on the other, the development of subnational democracy. In order to do this, I formulate the following research questions: given ongoing processes of regime change and democratization at the national level such as Mexico’s, under what conditions do subnational authoritarian enclaves persist, and under what conditions does democracy emerge and maintains itself at the subnational level? The subnational case studies under consideration will be the Mexican states of Oaxaca and San Luis Potosí. In an effort to identify features of authoritarian continuity and democratic change at the local level, I will subsequently test structural and cultural hypotheses in order to evaluate which approach better provides a causal explanation for subnational authoritarianism or subnational democratization. Furthermore, my secondary goal is to evaluate the impact that subnational political outcomes have on Mexico’s national-level processes of regime change and democratization.

Session B-14
Oral Presentation: Migration and Globalization
Friday, February 29th, 2008, 3:00 pm
Location: Quetzalcoatl A

#234 3:00 pm

**The Migration of Mexican Indigenous Women from Oaxaca**

Nadia Merino Chavez, Political Science & Chicana/o Studies
Isidro D. Ortiz, Chicana and Chicano Studies

This research project is an exploratory investigation of Mexican immigrant women from one of the “new” sending regions in Mexico, the state of Oaxaca. It seeks to interrogate the reasons, tools, nature, work, and consequences of migration for Oaxacan female migrants in San Diego County. The data for study are obtained through ethnographic interviews. My project also aims to assess the applicability of recent findings of scholarly research to female migrants from Oaxaca. Women from this state have not been the specific foci/subjects of extensive research. The potential benefits of this study include contributing to the basic knowledge about indigenous immigrant women from Mexico and the feminization of migration.

#235 3:15 pm

**Migration as Resistance: The Impact of Historical and Current Migration on Polish Nationalism**

Marta Jankowska, Geography Information Science
John Weeks, Geography

The development of Polish nationalism historically occurred without an indigenous Polish state imposing rules of culture, a vernacular, and a common historical past. Rather, Polish nationalism arose through the policies of the Russian and Prussian empires, which attempted to decimate Polish traditions, language, religion, and culture. These day-to-day attacks on the intimate lives of
individuals forced Poles to decide who and what nationality they were through the expression of personal identity and customs. Migration was an important method through which Poles actively resisted the impositions of the state. In order to escape oppression Poles moved out of the state, and when movement was not an option, they traveled spiritually and emotionally to the ideologically Polish countryside created and romanticized by émigré poets and writers. Over time the Polish nation as a community of people bound together by history, culture, and a sense of solidarity has disconnected itself from the legal and political concept of the state. Even the nation’s connection to the geographical landscape has been eroded through extensive internal migration during socialism. These processes have translated into a form of nationalism that to this day leaves little room for trust, acceptance, and acknowledgement of the state within the individual’s life. Today’s emigrants out of Poland are no longer migrating to resist, but rather for economic and demographic reasons. But they are making their decision as part of a society that is not strongly tied to the state and that is culturally and historically ‘bent’ towards migration as logical, valid, and not necessarily extreme. This attitude spurs unforeseen consequences such as potentially prompting more people to emigrate both temporarily or permanently, or seriously affecting local governments as individuals choose to earn their income beyond the state while keeping their family lives intact within Polish borders.

Immigrant women from Mexico and the feminization of migration.

#236 3:30 pm

*Is Immigration a Racial Issue? Anglos’ Attitudes on Immigration Policies in a Border County*

John Ayers, Political Science  
C. Richard Hofstetter, Political Science

Objective: This study assesses the association between Anglos’ aversion to Latinos, physical proximity to Latinos, and contact with ethnic minorities; with expressed preferences for immigration policies. Methods: Data were drawn from a telephone survey of San Diego County, California, residents (N=549 Anglos) using random digit dial procedures during 2006 that was conducted by closely supervised professional interviewers. Descriptive reports, tau-b correlations, and multivariate logistic regression were used for analysis. Results: Aversion to Latinos, as indicated by an adaptation of the Bogardus social distance scale, was related to more restrictionist attitudes about legal and Mexican immigration. Associations increased when respondents were primed to consider Mexican immigration, although aversion to Latinos was not related to attitudes about amnesty for undocumented persons. Contrary to some previous findings proximity to Latino populations increased opposition to legal immigration, Mexican immigration, and amnesty. Reported minority contact had minimal impact that failed to meet traditional levels of significance. Conclusions:

Attitudes about immigration may be partially motivated by racial resentments and more so than other considerations. Further research should identify racial factors that influence Anglos’ attitudes on policy positions that extend beyond the Anglo/African division.

#237 3:45 pm

*Demographic Changes and Social Conflicts in Post-Katrina New Orleans*

Arthur Saenz, Chicana and Chicano Studies  
Adelaida Del Castillo, Chicana and Chicano Studies

This is a study of demographic changes and conflict in the devastated city of Post-Katrina New Orleans, Louisiana comparing the period July 2006 with June 2007. The natural disaster crumbled New Orleans’ political and economic infrastructure and displaced almost half its population. While a large percentage of African-Americans continue to struggle to return home there has been a growing Latino/a population in New Orleans. Once a Black/White southern city, the growing Latino/a population has shifted its racial dynamics in a city known for its systematic racism. My work exposes the harsh living and working conditions many Latino/a workers endure in the reconstruction process. I have found that the Latino migrant community has been subjugated to many forms of economic and social oppression. Latino/a workers have experienced wage theft, verbal harassment and physical abuse from their employers and others. My work complements other studies which similarly show that the Latino migrant community has been victim to armed robberies due to the assumption that most Latino workers carry a large amount of cash with them since they don’t have access to bank accounts and won’t report these crimes to the police. I also address a growing tension between African-American and Latino ethnic groups who may be competing for employment in a diminishing job market and limited resources given by the federal government and the city of New Orleans. Lastly, trends suggest that in 2007 there was an increase in the occupation of rentals by Latinos in the city and a growing Latino/a student enrollment in the New Orleans School District. This growth indicates that the Post-Katrina Latino/a population will not only boom within the next decade, but will also impact Latino culture and traditions in a city known for its Black/White racial dynamics.
**ABSTRACTS**

#238 4:00 pm

*The Rhetoric of Anti-Globalization: Imperialism and War*

Tyrone Coronado, English: Rhetoric and Writing
D. Emily Hicks, Chicana and Chicano Studies

This is a study of demographic changes and conflict in the devastated city of Post-Katrina New Orleans, Louisiana comparing the period July 2006 with June 2007. The natural disaster crumbled New Orleans' political and economic infrastructure and displaced almost half its population. While a large percentage of African-Americans continue to struggle to return home there has been a growing Latino/a population in New Orleans. Once a Black/White southern city, the growing Latino/a population has shifted its racial dynamics in a city known for its systematic racism. My work exposes the harsh living and working conditions many Latino/a workers endure in the reconstruction process. I have found that the Latino migrant community has been subjugated to many forms of economic and social oppression. Latino/a workers have experienced wage theft, verbal harassment and physical abuse from their employers and others. My work complements other studies which similarly show that the Latino migrant community has been victim to armed robberies due to the assumption that most Latino workers carry a large amount of cash with them since they don’t have access to bank accounts and won’t report these crimes to the police. I also address a growing tension between African-American and Latino ethnic groups who may be competing for employment in a diminishing job market and limited resources given by the federal government and the city of New Orleans. Lastly, trends suggest that in 2007 there was an increase in the occupation of rentals by Latinos in the city and a growing Latino/a student enrollment in the New Orleans School District. This growth indicates that the Post-Katrina Latino/a population will not only boom within the next decade, but will also impact Latino culture and traditions in a city known for its Black/White racial dynamics.

#239 4:15 pm

*Preliminary Review of Social and Economic Impacts of Korean Transnational Financial and Human Capital in Guatemala*

Will Anderson, Geography
Fernando Bosco, Geography

This presentation will explore the dynamics of the transnational Korean communities associated with Guatemala’s export-assembly industry, including the ways in which Korean transnational capitalism impacts the country's economic and social landscapes, particularly in terms of its associated local Korean transnational communities. Although literature exists that relates to the topic generally (i.e. explorations into the concepts of transnationalism and ‘flexible’ citizenship, the micro-economic impacts of neoliberal policies on developing countries, labor relations in the maquila export-assembly industries, the Korean diaspora and foreign investment, etc.) there has been little or no research that contextualizes exactly how transnational capital investment in Latin America (particularly in terms of its transient nature through strategies of flexible accumulation) impacts the lives of people inside and outside the associated transnational communities, nor on the relations between the transnational and local groups (specifically outside of the labor and manufacturing spheres). Consequently, this presentation will provide a preliminary overview of relevant existing literature, an overview of proposed fieldwork, and areas of inquiry.

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**Session B-15**

Oral Presentation: Health Behaviors
Friday, February 29th, 2008, 3:00 pm
Location: Quetzalcoatl B

#240 3:00 pm

*Seven Million Three Hundred Eighty-Two Thousand Nine Hundred Eighty Dollars*

Julie Bishop, Social Work

I conducted an exploratory research project evaluating the Student Health Fee and the Student Health Service Fee. The study surveyed 50 SDSU students and evaluated their utilization of the Student Health Center. The survey also involved an initial investigation into the need for students to have other options for health care, to include the Student Health Center but also to include emergent care and hospitalizations. Fifty students were given a questionnaire to complete with results evaluated. The results supported the initial hypothesis in that over 85% of students have other health care options other than the student health service center. In addition 56% of the students surveyed had never utilized the Student Health Center, however were required to pay the required fees. Lastly of the students surveyed, 60% would like the university to offer an Opt-out option for the student Health fees.

#241 3:15 pm

*Hand Sanitizer Usage at SDSU Health Center and Ralphs*

Abhijeet Garcha, Anthropology
Elisa Sobo, Anthropology

Hand sanitizer use has been linked to reduced infectious disease rates, but do people use it? This project, which focused on the SDSU student health center (SDSUHC) and a local grocery store (Ralphs), measured hand sanitizer use rates and explored
Can Amputees Return to Active Duty Service? New Approaches to Rehabilitation and Military Policy
Jo'el Roth, Rehabilitation Counseling
Caren Sax, ARPE/Interwork Institute

This abbreviated literature review explores the current availability of evidence-based research into recent advances in rehabilitation approaches, methodologies, techniques and military policy that will facilitate military personnel's ability to return to active duty service after undergoing limb amputations due to injury. The loss of limbs to amputation after traumatic injury is one of the signature wounds of the current conflict, Operation Iraqi Freedom (OIF). Whereas previous U.S. conflicts were fought in the air, this battle is fought on the ground. The weapons of choice for previous battles were various forms of tanks and guns, most frequently the AK-47. In this war the weapon of choice for the opposition forces is the Improvised Explosive Device (IED). Guns cause discrete body wounds, most frequently in the thorax or stomach. IED's, on the other hand, are built and placed to explode, impacting whatever and whoever is in the vicinity. Because of this, most combat related injuries in Iraq and Afghanistan have not come from bullets but from blasts... (Santa Rita, 2005). Due to advances in battle field medicine, wound care, rehabilitation and prosthetic technology, many soldiers who would not have lived through their major wounds in the past, now survive the initial trauma. Advances in surgery, prosthetics and rehabilitation have lead to a new generation of amputees who have the ability to live independently, walk, run, and participate in challenging sports. This new generation is now requesting the ability to return to active duty. This study looks at what is being done to answer that request.

Is Winter The Season Of Death? A Secondary Data Analysis Of U.S. Winter Mortality in Older Adults
Chris Murphy, Gerontology
Mario Garrett, Gerontology

This paper investigates whether winter is the season of death for older adults. The hypothesis examined is whether mortality rates are higher during the five winter months of November through March among older adults (65+) in the United States. Peer-reviewed literature shows there is a consistent trend of higher mortality for older adults in winter months. Although temperature might be the cause, research shows it is change in temperature, rather than absolute temperature, which is most causative of the upward surge. Also, the pathway for mortality may be mediated by other processes. Notable in its importance, among the biological and physiological processes discussed, is the level of a blood protein, fibrinogen, which increases during winter months. The higher the blood's fibrinogen level, the greater the risk of heart attack and stroke among older adults. The paper analyzes secondary data from all 1991 U.S. mortalities, ages 65 and over (1,545,208 cases), compiled by the National Center for Health Statistics. The empirical results corroborate existing literature showing there is greater mortality in winter months in the United States. With this knowledge, the paper proposes that longitudinal studies are required to define and understand the relationship between fibrinogen and temperature variations. Understanding the complexities surrounding increased winter mortality has implications for older adults, their families, caregivers, the medical community, and public health officials. This study contributes to the discussion on senescence, suggests interventions, and posits a theoretical basis for further study.

Integrity: Major League Baseball and Steroid Use
Jade Smith, Sports MBA
Scott Tinley

Beyond a winning or losing record and their favorite player being injured, American society today and the American government are most concerned with the use of performance-enhancing drugs ("steroids") within professional sports and its effect on society. One might ask, does professional sports players’ use of performance enhancing drugs within the sports world really have an affect on society. The answer is yes, it has a huge negative
impact on America’s youth, especially with the increasing number of children taking steroids and thinking it is noble to take steroids. Congress has investigated this issue in the past, recently finished an investigation, and might continue to investigate in the future if this issue is not soon resolved. Out of all of the professional sports, baseball by far it appears from the media to be the largest contributor to this problem, with the largest amount of players deliberately using steroids. Furthermore, Major League Baseball (MLB) has been unable to accurately control and regulate their players’ extensive use of these substances. This not only raises the issue of steroid use among the youth, but it also raises the issue of the adequacy of federal drug laws and the effectiveness of federal enforcement efforts. It appears that other professional sports leagues (i.e. National Football League (NFL), National Basketball Association (NBA), and the National Hockey League (NHL)) have adequately regulated the testing of these controlled substances among players and continue to stay up-to-date on new drugs and advances in testing. So, why is it that Baseball’s efforts have not been effective? Why is MLB unable to adequately control their players’ use of these drugs and what more can be done to restore baseball’s integrity?

#245 4:15 pm

¡Frutas Y Verduras Sin Fronteras!: An Audio Soap Opera for Latino Immigrants in North Carolina

Erika Hernandez, Public Health
Guadalupe Ayala, Graduate School of Public Health

An audio soap opera was created as a part of a social marketing program to increase the consumption of fruits and vegetables among Latino immigrants in North Carolina. The story revolved around the immigrant experience by personifying fruit and vegetable characters that reflected the concerns and dreams of making a new life in the United States. Subliminal messages of the importance of consuming fruits and vegetables were incorporated into the storyline to make these messages palatable and relevant.

Session C-1
Oral Presentation: Higher Education and Curriculum
Saturday, March 1st, 2008, 8:30 am
Location: Calmecac

#246 8:30 am

Visualizing Variation in University Classroom Discourse
Gregory Verutes, Geography
Eniko Csomay, Linguistics and Asian/Middle Eastern Languages

Research in Linguistics has found discourse in university classrooms to vary by instruction level and the degree of teacher-student interaction. Csomay’s 2005 study focuses on variation along three dimensions of teaching: 1) contextual versus informative focus, 2) personalized framing versus lack of personalized framing, and 3) interactive dialogue versus teacher monologue. This research builds on Csomay’s findings by visualizing linguistic variation within class sessions and comparing visualizations across different disciplines and instruction levels. Utilizing discourse transcripts from 51 classroom sessions, we examine intra-textual variation by creating a Self-Organizing Map (SOM) of university discourse. The basic units of measurement for the SOM are Vocabulary-Based Discourse Units (VBDU), which denote a significant variation in linguistic content. The SOM method allows for the visualization of a high-dimensional discourse space upon which we can map phenomena. Since the progression of lectures are visualized at the scale of the VBDU, this research answers questions regarding the links between cognition and shifts in discourse content. It also addresses whether these triggers can be generalized or if they vary across disciplines and level of instruction. This project demonstrates another instance where geography plays a key role in the conceptualization and visualization of information spaces. It also provides an example of how the SOM helps researchers efficiently analyze text and qualitative data. Geography’s pertinence to this topic has in recent years become an area of increasing interest, especially with geovisualization scientists beginning to map text data, and this project will extend the usefulness of geography to information visualization.

#247 8:45 am

Lexico-Grammatical Patterns In Discourse Structure: The Case of University Classroom Talk
Melanie Piche, Linguistics
Eniko Csomay, Linguistics and Asian/Middle Eastern Languages

The purpose of this study is to examine the lexico-grammatical patterns occurring at the boundaries of discourse units within spoken discourse in university classrooms. Class sessions taken from the T2K-SWAL Corpus were used for analysis, including six major academic disciplines (business, education, engineering, humanities, natural science, and social science) and three levels of education (lower division undergraduate, upper division undergraduate, and graduate). Discourse units were identified and segmented using a discourse segmentation model called the TextTiler which segments a text based on patterns of vocabulary (Biber, Csomay, Jones and Keck, 2004). These units have been analyzed for their linguistic characteristics and functions (Csomay, 2005). Previous studies have not included a linguistic description of the lexical items occurring at segment boundaries and so the proposed study aims to fill this gap by focusing on the boundaries between units that represent shifts in discourse.
It compares how automated segmentation differs from human segmentation in terms of identifying boundary shifts and will provide a detailed lexico-grammatical analysis of the items within a window of text around the boundaries. Possible benefits include the opportunity to inform us on the structure and function of language within a tertiary academic setting. A preliminary pilot study on Business class session has shown several patterns across each of the three levels of instruction. Each instructional level’s initial boundary was marked by a noun phrase and the most common boundary type found at each level was also the noun phrase. Additionally, both the Lower and Upper division classes exhibited a very close division between functional and lexical boundary words, with a slight preference for lexical words. At the Graduate level this preference reverses and function words appear to be more prevalent at boundaries. Preliminary findings for human segmented boundaries show numerous differences from the computer segmented boundaries.

#248 9:00 am

**Facing the Storm: An Approach to Problem-Solving Curriculum**

John Patel, Policy Studies in Language and Cross-Cultural Education  
Cristina Alfaro, Policy Studies in Language and Cross-Cultural Education

This research examines the low motivation of self-identified college bound students in inner city schools as it relates to curriculum. The goal is to establish an ideological framework for understanding student alienation from existing curriculum and necessary changes for establishing a more rigorous, purposeful, and captivating standards-based educational program. It is a case study of freshman students at San Ysidro High School at the beginning of their road to college. The content of existing curriculum fails to meet the criteria of speaking to an already established beginning of their road to college. The study asserts that both the form of delivery and student product must engage the learner through multiple modalities. This study employs student surveys, interviews, a literature review, and ongoing quasi-experimental research. The hypothesis is reported in a manner that is consistent with the findings by appealing to a variety of modalities through video, spoken word and written reflection.

#249 9:15 am

**Staying Inside the Lines: The Influence on Traditional Teaching from Preparation to Practice**

Lauren Lacombe, Policy Studies in Language and Cross-Cultural Education  
Cristina Alfaro, Policy Studies in Language and Cross-Cultural Education

Many teacher preparation programs explicitly endorse traditional teaching approaches through carefully designed curricula that may present coursework, methodology, and theories not as malleable contributions to an educational debate, but as non-negotiable ingredients to the successful-teacher recipe. The purpose of this research is to explore two contrasting teacher preparation programs. Each program serves to investigate the parallel between teacher training and practice in the classroom. Through the examination of each program’s curriculum, it is this study’s objective to analyze each curriculum’s design and how it contributes to methodologies featured in classroom practice. The study examines the differing preparation curricula to highlight how traditional approaches in coursework, instructional methods, learning theories, and practical experience enforce an educational status quo in the classroom and outline a cycle of future educational practice harmful to student learning. The research will be conducted through the collection of publicly accessible, existing information on each teacher preparation program including its program requirements, coursework, and instructional methods. Additionally, this study will include in-depth interviews from representatives of each teacher preparation program. The subjects of the study are two teacher training programs from the University of Nevada, Reno and San Diego State University which each have programs beneficial to future educators but with two varying methodologies. There has been minimal research examining teacher preparation programs and their impacts on future educator and student learning. This research effort will contribute to existing research and will aid university curriculum developers in better addressing educator training and its influences on teacher practices. It is the hope that this thesis will inspire university teacher-training programs to evaluate their own curricula in relation to their individual community and student needs.

#250 9:30 am

**The Bone Box: The Development of a Skeletal Biology Teaching Resource**

Marlo Nalven, Anthropology  
Arion Mayes, Anthropology

Bones serve many functions in the human body including protecting soft tissues and internal organs, producing blood cells, and acting as levers to produce movement. Osteological techniques are used to answer various questions about that individual’s identity such as their age, sex, ancestry and stature. Changes to the bone, depending on when they take place, can tell us about an individual’s life and death. Anomalies in the skeleton anatomy can aid in identifying an individual and is often used within a forensic context. By studying skeletal biology, the life history of an individual or ancient population can be revealed; such as diet, disease, and evolutionary forces. Education studies have proven that the best way to learn science is through small group labs
and hands-on analysis that encourage interaction. However, in most cities there are currently little to no skeletal resources for teachers to use in their classrooms for hands-on activities. This thesis suggests an alternative method through the development of a skeletal biology kit, called the “Bone Box,” that high school teachers and community college professors can check out from a local museum, The San Diego Museum of Man. Included in the kit are lectures, labs, as well as the appropriate skeletal cast material. In order to develop the most effective teaching resource, anthropologic and education theories were addressed, osteology and forensic anthropology methods were evaluated, education research studies were explored, local experts were consulted, educators in the field were interviewed, and the Bone Box was tested in classrooms. Curricular aspects of the Bone Box are based on California State Standards and education pedagogy including constructivist theory and scientific literacy.

#251 9:45 am
Empowering a Border Community across Family Literacy Circles
Robert Stone, Teacher Education
Fernando Rodríguez-Valls

The Latin-American communities pertaining to the distinct public school settings in the United States of America are many times portrayed by academic research as passive members in regards to the education of their children. At the same time, families are many times, and in conjunction with teachers, made responsible of the everyday widening of the achievement gap. Under the umbrella of Literacy Circles, this research intends to redefine the attitudes and behaviors of the Latin American family in relation to their child are learning process. More importantly, the research proposes an alternative to the solution of the well-known challenge called “Closing the Achievement Gap”. During the winter of 2007, 100 students and their families were invited to participate in an ongoing collaborative literacy project where the objective is to create a platform where academic dialogue may take place. In this dialogue bridge, the public school community of Blanche Charles Elementary School, located in Calexico, California, is not just discussing the importance of state testing, but it is taking it a step further and is defining literacy in a school community context where the views, the thinking, and the needs of the community are taken into consideration.

Session C-2
Oral Presentation:
MEMS and Electrical Devices Design
Saturday, March 1st, 2008, 8:30 am
Location: Casa Real

#252 8:30 am
WiBandAccelero - New Concepts in Wide Bandwidth Resonant Frequency Tunability in MEMS Accelerometers
Amandeep Singh, Mechanical Engineering
Sam Kassegne, Mechanical Engineering

MEMS (Micro Electromechanical Systems) accelerometers continue to make inroads in such applications as airbags, navigational systems, military applications and gaming devices. The application of MEMS accelerometers is expected to enter newer areas such as mobile devices such as cell phones for both civilian and military applications. However, these new applications pose aggressive performance requirements such as tunability of frequency range over a significantly wide bandwidth. A particular example relates to the needs of the next generation of commercial as well as military hand-held devices with navigational capabilities. This research concentrates on developing an accelerometer capable of detecting a quick movement (0.5g 2.5g) as well as the zooming movement (0.1g 0.5g). The MEMS accelerometer is named WiBandAccelero and is tunable from tens of kHz to hundreds of kHz. The range is selected to cover tilt needs in both digital map navigational as well as mobile gaming applications. The tunability is achieved by the use of a series of embedded accelerometers of sequentially differing resonant frequency on a monolithic frame and a novel active structural re-configuration design. So far, we have accomplished the design to meet specs for mobile navigation systems. This was preceded by a large study of 50 individuals to determine statistical distribution of acceleration signatures. The study is now focusing on the design of the electronic and control systems. The extension of the tunability by 2 orders (1000%) is certainly very significant progress with wide ranging implications. Further, we feel that this ongoing work in wide tunable accelerometers will open up new possibilities in personal mobile device applications for both civilian and military uses by introducing much wider bandwidth tunability unavailable so far.
#253  8:45 am

**Electrically Active Microarray of 3D Carbon MEMS Electrodes for Pathogen Detection Systems**

Jiae Shin, Mechanical Engineering  
Sam Kassegne, Mechanical Engineering

The ability to isolate and concentrate pathogens (bacteria, virus, etc), biomolecules, and any sub-micron particles is critical to many biomedical applications including diagnosis for cancer and infectious disease (SARS, deadly flu strains, STD, etc). Conventional pathogen detection exploited active microarrays with two-dimensional electrodes and they have been used with success for the manipulation of biomolecules including DNA. However they have a major drawback of inability to process relatively ‘large-volume’ samples useful in oncology and infectious disease applications due to the wash-away phenomena. This research presents an active microarray that exploits electrokinetic force (electrophoresis or dielectrophoresis) for its hybridization method using 3D carbon electrodes that enables the large-volume sample manipulation for pathogen detection obviating the limitation of conventional 2D planar electrodes. Three-dimensional electrodes that were reported in earlier research were fabricated using either metal or silicon using conventional fabrication techniques; however three-dimensional electrodes utilized in this research are microrfabricated using C-MEMS (Carbon MEMS) technology. C-MEMS technology is an emerging fabrication technique nowadays utilizing the excellent properties of carbon-based materials such as bio-compatibility, good thermal conductivity, super-low friction, and chemical stability and also provides the benefit of low-cost production. The microfabricated chip using C-MEMS technology is packaged using proper packaging set and the efficiency of 3D carbon electrodes on the chip is tested by manipulating negatively charged polycarboxylate 2 micron beads in 50 mM histidine buffer.

#254  9:00 am

**Investigations on Ultra-wide Bandwidth Planar Microstrip Slot Antennas**

Sunil Kumar Rajgopal, Electrical Engineering  
Satish Sharma, Electrical and Computer Engineering

FCC allocated the frequency spectrum from 3.1GHz to 10.6GHz as the ultra-wideband (UWB) in the year 2002 and since then has attracted huge attention on ultra-wideband antenna technology in the industry and academia. Ultra wideband communication systems have the promise of very high bandwidth, reduces fading from multipath and low power requirement. Microstrip antenna is used widely in wireless applications. They are popular because of its low profile, small size, lightweight, low cost, high efficiency and easy economical fabrication. Planar format of UWB antennas achieves integration between the radio frequency (RF) front end circuitry and radiating structure. In this paper, an ultra-wideband (UWB) pentagon shape planar microstrip slot antenna is presented for wireless communication applications. Combination of pentagon shape slot, feed line and pentagon stub are used to obtain 130% (2.4 to 11.5 GHz) impedance bandwidth w.r.t. $S_{11} = -10\text{dB}$. Ground plane of $50\text{mm} \times 80\text{mm}$ is used which is similar to a computer PCMCIA card (personal computer memory card interface adapter). The designed antenna has nearly good omni-directional radiation characteristics throughout the bandwidth. The slot, stub and feed line covers only the top $20\text{mm}$ of the ground plane, this leaves enough space for RF circuitry in many handheld applications. The effects of the straight feed line, rotated feed line, reflecting sheet on the back of the antenna have also been investigated. The 3-element configuration similar to the Multiple Input Multiple Output (MIMO) is also studied. The antennas show high cross-polarization levels but considering the handheld wireless communication application, the cross-polarizations are not a major factor. Finally, experimental verification of the prototype fabricated antenna for its impedance bandwidth is carried out, which shows agreement with the simulated data. To test the UWB antenna performance, the transmit-receive configuration was simulated and the scattering parameter results are presented.

#255  9:15 am

**Additional Design Parameters and Low-Cost Fabrication Techniques for Aperture-Coupled Microstrip Patch Antennas**

Christopher Meagher, Electrical Engineering  
Satish K. Sharma, Electrical and Computer Engineering

Microstrip patch antennas are often used in high frequency (S-band and above) applications because of their low weight and form-factor. This is especially true for commercial wireless communications systems, which do not require high power handling. The feed type that is often chosen for microstrip patch antennas is aperture-coupling because of the increases in bandwidth and front-to-back ratio it provides over other feed types. However, the additional aperture and dielectric substrate further complicate antenna design as a single aperture-coupled microstrip patch antenna has at least 12 design parameters. Previous researchers have provided empirical guidance on several of these parameters. We present studies of the effects of four additional design parameters on antenna performance: trace width, aperture length, patch standoff thickness, and patch cover thickness. To accomplish this, a 5.8GHz antenna has been simulated using Ansoft Designer. By monitoring the antenna’s input impedance on a Smith Chart, we found that altering the trace width and patch dielectric thickness do not change the resonant frequency of the antenna. Rather, increasing the trace width causes the antenna to appear more inductive and increasing the patch standoff thickness tends...
to shrink the impedance locus. The latter would be beneficial to increasing bandwidth, but it also shifts the locus towards a short circuit. On the other hand, changing aperture length does shift the resonant frequency of the patch antenna, as expected. The patch cover thickness has a substantial effect on antenna performance, and it can be considered a radome in analysis. Finally, we present our in-house fabrication methods using low-cost and readily available materials – which also constrain the antenna design. The antenna design is optimized, fabricated, measured, and compared against simulation.

#256 9:30 am

A New Generation of High-sensitivity Biochemical Sensors using PMN-PT Single Crystal Thin Membranes

Michael Frank, Bioengineering
Sam Kassegne, Mechanical Engineering

In this paper, we report the results of the HCL wet etching process to fabricate a PMN-PT single crystal piezoelectric thin membrane. A piezoelectric thin membrane can offer the ability to passively sense vibrations without power requirements. Furthermore, the new generation oxide material exhibits extraordinary piezoelectric properties. The material, the single-crystal solid-solution (1-x)Pb(Mg_{1/3}Nb_{2/3})O_{3}-xPbTiO_{3} (PMN-PT), has been shown to possess piezoelectric coefficients and electromechanical coupling responses significantly larger than conventional ceramics. A four-fold enhancement in piezoelectric coefficients and much higher efficiencies in electrical to mechanical energy conversions have been found. In this paper, we present the research results produced from the experimental work for the PMN-PT wet etching in HCL solution.

#257 9:45 am

Design of Dual Band Circular Waveguide Horn Antennas

Bharat Thummala, Electrical Engineering
Satish Kumar Sharma, Electrical and Computer Engineering

Most of the satellite communications and radar application reflector antenna systems employ waveguide horns as feed sources. The feed property should be such that it can properly illuminate the reflector without much of the spillover so that high reflector efficiency can be obtained. The feed requirements are also controlled by the focal length to reflector diameter (f/D ratio). In this research work, the design of a dual band horn antenna which operates at 4GHz and 6GHz frequency bands is presented for a symmetric reflector antenna with f/D ratio of 0.6. The antenna provides symmetrical radiation patterns with low cross-polarization levels. The targeted impedance bandwidths are 500MHz each at the two bands. The horn design has been obtained by varying diameters of conical sections and the position of rectangular waveguide feed ports. The designs with choke and without choke have been carried out and the effect of choke on impedance matching and radiation pattern characteristics will be presented during the symposium. The data for 3dB and 10dB beamwidths, gain, and cross-polarization levels will be included. The antenna was designed using finite element method (FEM) based full wave analysis tools “High Frequency Structure Simulator (HFSS)” from the Ansoft Corporation.

Session C-3
Oral Presentation: Social and Behavioral Health
Saturday, March 1st, 2008, 8:30 am
Location: Council Chambers

#258 8:30 am

Meditation: An Alternative Treatment for Addictive Behaviors

Tonya Warren, Philosophy
Sandra Wawrytko, Philosophy

One unique aspect of Buddhist philosophy is its emphasis on the “science of the mind”. Broadly speaking, the goal of Buddhism is the cessation of suffering. This is achieved through meditative introspection. This paper describes how Buddhist meditation can be effectively used in the treatment of addictive behaviors. Positive outcomes in treatment are derived from the ability of meditation to reduce habitual responses, increase self-awareness, improve self-efficacy, and restructure neural pathways. Via meditation, the subject is able to deconstruct negative behaviors and construct new positive ones.

#259 8:45 am

College Students: The New Face of Problem Gambling? Gambling Behavior and Prevalence Among San Diego State Students

Jolene Weston, MSBA-Marketing
Don Sciglimpaglia, Marketing

Gambling among college student populations has grown to epic proportions, leading to major mental health, safety, and policy issues as a function of problem gambling behavior. Various prior studies have concluded that the availability or proximity of legal gambling venues to college campuses is positively associated with increased ‘risky’ gambling behaviors. San Diego State University is located within one hour of nine Indian gaming casinos in the city’s vicinity; the most dense casino area in the country...
outside of Las Vegas. No prior study has assessed the impact that such heightened availability of legalized gaming access may have on SDSU student gambling behavior. The unique purpose of this study was to gauge the frequency and impact of gambling behavior among SDSU students and compare these results to other estimates of student gambling prevalence reported elsewhere in literature. A survey of 737 SDSU students was conducted in 2007. The self-administered questionnaire was designed to assess student’s gambling prevalence, gambling behaviors, gambling motivation, attitudes and demographic factors related to gambling, and potential problems students face directly related to their gambling behavior. After completing the questionnaire, students were classified as non-problem, problem, or pathological gamblers, using previously defined measure reported in the literature. While it is probable that gambling is an innocuous behavior for many SDSU students, a considerable number reported potentially risky or compulsive gambling habits. Results indicate the rate of students classified as either a problem (4.4%) or pathological (13%) gambler at SDSU is significantly higher than in the general adult population. The aggregate rate of problem/pathological gamblers (17.5%) at SDSU is also higher than reported rates among other university studies. The results support the hypothesis that availability/proximity of legal gambling venues to college campuses is positively associated with increased ‘risky’ gambling behaviors. Correspondingly, universities in areas close to casinos should prepare to address increased mental health, safety issues, and campus policy issues as a function of problematic gambling behavior among students.

#260 9:00 am

Role Model’s Influence on Pre-Teens’ Alcohol Use

Ding Ding, Health Promotion and Behavioral Sciences
Mel Hovell, Graduate School of Public Health

Background: Previous studies have found that parental and peer influences significantly predict adolescent alcohol use. However, little research has been conducted to examine whom pre-teens consider their role models and whether perceived role model’s drinking or role model’s attitudes toward pre-teen drinking are associated with pre-teen alcohol use. Objectives: (1) Examine the prevalence of drinking initiation in a pre-teen sample. (2) Determine the perceived role models for this age group. (3) Determine whether role models’ alcohol use, role models’ discouragement of pre-teen drinking and parental monitoring influence pre-teen’s alcohol use. Methods: From June 2004 to March 2007, 390 high-risk pre-teens (8-13 years old) and their parent were recruited in San Diego County. Multivariate logistic regression analyses of interview data from pre-teens. Results: Twenty-six percent of pre-teens reported ever alcohol use. Seventy-four percent had role models who were mostly their parents (25%) and friends (23%). Nineteen percent of pre-teens’ role models drank alcohol. Role model’s drinking doubled pre-teens’ odds of alcohol use (adjusted odds ratio [AOR]=2.03, 95% CI=1.05-3.92, adjusted for their age, role model’s discouragement of drinking, and parental monitoring). Role model’s discouragement of drinking (AOR=.60, 95% CI=.36-.99) and parental monitoring of what the pre-teen is doing (AOR=.55, 95% CI=.34-.90) were protective factors of pre-teen drinking. Conclusions: These results are consistent with Social Learning Theory. Given the health hazards of early alcohol use, adults who spend time with pre-adolescents should set up good examples to pre-teens by not drinking, and actively discouraging drinking. Future studies of pre-teens’ drinking behavior should include their role models.

#261 9:15 am

Analysis of Paternal Effect on Cognitive Performance in Early Life

Anna Bellatorre, Sociology
Brian Finch, Sociology

Many studies exist regarding child development and performance, while these studies take on many forms, it is crucial to note the changing degree of importance attributed to the role of the father being present during a child’s formative years on said performance. In the following study, we examine this role and discern to what degree the father being present and active in a child’s early life has on a child’s developmental, motor, and language acquisition skills. We utilized a federally compiled data set, the Early Childhood Longitudinal Study (ECLS-B) that tracked a well representative birth cohort of over ten thousand children from infancy which provided a richness of information both in terms of descriptive and analytical variables which were used to gauge and analyze the data. To analyze this data we created a linear mixed model for a three level clustered data set. We then performed nested ANOVA tests to see what fixed and random effects were statistically significant for predicting the mental performance score. Our preliminary findings indicate that the role the father plays in a child’s early life may have a statistically significant effect on the overall performance of the child when analyzed according to the Bayley Short Form scale of child performance.

#262 9:30 am

Predictors of Condom Use Among Repeat HIV-Negative Testing Men who have Sex with Men

Carol Sipan, Health Behavior
Mel Hovell, Graduate School of Public Health

According to the Centers for Disease Control and Prevention (CDC), at least 46% of all U.S. AIDS cases have resulted from male-to-male sexual contact. Consistent condom use for anal sex among men who have sex with men (MSM) is critical for meeting CDC’s objective of reducing new infections by 50%. This study...
examined HIV-related risk behaviors and explored predictors of condom use in a sample of males participating in the evaluation of an intervention to reduce HIV infection risk among high-risk, HIV-negative repeat testers in San Diego. Baseline data for a subsample of 85 White (69.4%) and Hispanic males reporting anal sex with male partners in the previous 12 months were analyzed using the Behavioral Ecological Model (BEM; Hovell et al). The BEM hypothesizes that condom use is predicted by multiple behavioral influences in the social and physical environments such as modeling, reinforcement, punishment, and cues to enact behaviors; individuals exposed to higher densities of behavioral influences supportive of condom use would have higher rates of condom use. Nearly one-fourth of the sample reported never using condoms during anal intercourse in the last 3 months, and 81.1% reported sex with casual partners. A sequential multiple regression of four blocks (demographics, sexual practices, condom negotiation, and peer influence) was used to test the significance of 8 independent predictors of condom use. The final regression model accounted for 62.9% of the explained variance in 3-month condom use for MSM anal intercourse, $F(8,76) = 18.80, p < .001$. The variables that contributed significantly in the complete model were: the number of times had anal sex ($p<.001$), condom negotiation ($p<.01$) and peer influence for condom use ($p<.01$). Results provide support for the BEM and evidence for extending prevention activities beyond education to establishing skills and engineering peer support for condom use.

Session C-4
Oral Presentation: Communication Studies
Saturday, March 1st, 2008, 8:30 am
Location: Presidential Suite

#263 9:45 am
A Comparison between Parent’s and Children’s Reports of Parenting Practices
Joshua West, Health Behavior
Mel Hovell, Graduate School of Public Health

Gateway drug use can be a precursor to higher-level drugs. Parenting practices may play an important role in adolescents’ use of drugs, as may adolescents’ perceptions of their parents’ parenting practices. The purpose of this study was to compare reports from parents and their adolescent regarding the parents’ parenting behaviors, and to examine how these reports differentially predict gateway drug use. The sample consisted of 252 Latino adolescents participating in a community trial. Participants were recruited from San Diego high schools near the US-Mexico border. Sequential regressions were used to test two predictive models of drug use that differed only in the source of the same parenting variables. One model included parents’ reports about their own behavior and the other included adolescents’ reports about their parents’ behavior. Four blocks were entered into both models: demographics, parenting, school influence, and peer influence. Youth averaged 15.9 (sd = 1.2) years and males accounted for 49.4%. 69.1% of participants used gateway drugs. The full parents’ model explained 39.8% of the variance in adolescents’ gateway drug use and the parenting block was not significant. The full adolescents’ model explained 41.4% of the variance, and the parenting block was significant ($p<0.05$). Acculturation (+), size of social network (-), and peer modeling (+) were significant predictors of gateway drug use in both models. Parental involvement in school (-) and parental yelling (+) emerged as significant parenting variables only in the adolescent’s model. Results revealed differences in parent and child reports of parenting behaviors and that only adolescents’ reports of parenting contributed to significantly explained variance in gateway drug use. Peer influence was a significant predictor in both models along with acculturation. Future studies should involve more precise measures and determine the possible differential validity of parent vs. adolescent assessment of parenting practices.

#264 8:30 am
The Jewish Influence in the Communication Discipline
Robin Goret, Mass Communication and Media Studies
Diane Borden, Journalism & Media Studies

This thesis considers the questions of how the discipline of communication has been shaped by the influence of the European Jews that fled Germany and Austria in the 20th century. This thesis examines the work of Theodor Adorno, Max Horkheimer (the Frankfurt School scholars), Paul Lazarsfeld and Kurt Lewin and how their experiences with Anti-Semitism and the rising of the Nazi regime influenced their work in the United States. In looking at these scholars, this thesis will examine the significant role World War II and the Holocaust played in the development of certain communication theories and avenues of research. This thesis will also compare how the European scholars were treated versus their contemporary American born Jewish scholars in academe. Finally, this thesis will look at how their research contributed to the rise of media culture and consumer culture in the postwar United States compared with the social and economic environments in postwar Germany.
#265 8:15 am

**The Language of Love: Modifications and Emerging Patterns of Self-disclosure through Computer-mediated Communication**

Makenzie Phillips, Communication Studies  
Brian Spitzberg, Communication

The impacts of computer-mediated communication (CMC) on self-disclosure behaviors is an understudied topic, even though prevalence of use of CMC messaging media continues to rise for all age groups in America. The study of self-disclosure as it pertains to CMC has important implications for the field of communication. The effects of CMC on self-disclosure in romantic relationships are the focus of the current analysis, and the paper aims to deduce how CMC changes the depth, breadth, and valence of self-disclosure within romantic relationships by examining the existing literature on the subject. Existing theoretical models will be compared for their common and contrasting claims regarding CMC disclosure. Some theories predict a lack of emotional and informational richness due to the lack of nonverbal content, whereas other theories predict ‘hyper-personal’ acceleration of disclosure because of the relative anonymity and content focus of the media. The status of the evidence for these theories is examined, and the resulting propositions are conceptually integrated into an empirically-based model of CMC disclosure. Specifically, text messaging via cellular telephones and Instant Messaging (IM) online are addressed as tools for romantic self-disclosure. This analysis concludes by formulating novel predictions for proposed research to refine existing theoretical models of CMC interaction and relationship development in this context.

#266 9:00 am

**Affect/Expression/Connection: Examining the Sharing of Music in Relationship Dyads**

Cameron Sublett, Communication Studies  
Brian Spitzberg, Communication

Recent archeological and anthropological discoveries indicate that human beings had begun to conceptualize and theorize music as early as the middle Paleolithic period, some 50,000 years ago (Juzhong, 2004; Kilmer, 1971; Kunej & Turk, 2000). Researchers had previously observed the essential role of music in various cultural rites, traditions, ceremonies, and social processes (Bohman, 2000; Lomax, 1968), but the discovery of such ancient instrumentation and musical notations, concurrent with advances in cognitive research, provides convincing support for the intriguing notion of an innate, biological musical mechanism in the human species (Peretz, 2006; McDermott & Hauser, 2005). Research suggests that the human animal is inherently musical (Peretz, 2006), yet previously unimagined entertainment technologies such as mp3’s and the ipod have allowed people to incorporate music in their everyday lives more than ever, increasing music’s sociological role. While a great body of research has focused on various aspects of music and society, less research has directly examined the function of music in interpersonal contexts. The present study seeks to address this perceived gap through empirical research. Specifically, this study examines the ways in which music functions to increase maintain relational closeness. Results indicated that the sharing of music, particularly personal “mixes” or music compilations methodically, and specifically created by one person for another increases relational closeness among participants. Similarly, nonverbally and emotionally expressive people were found to be significant but modest predictors of music sharing behavior. Musical orientation was correlated with creating and sharing music for the purposes of social support, emotional expression, stress reduction, identity expression, and intimacy.

#267 9:15 am

**Factors Affecting Communicative Practices in Everyday Activity**

Lea Ciceraro, Communication Studies  
Brian Spitzberg, Communication

There is little data available in the field of communication in relation to the daily communicative practices of people. This paper provides a descriptive and explanatory profile of a person’s average day from a communication perspective that is subdivided by various factors. Also, several propositions that are based on this model of Daily Communication Practices are presented which aim to discuss on some of the most important concepts in the field of communication that could make the biggest difference in daily communication practices. When this model is employed in the future, it will provide more accurate estimates of the amount and contexts of daily communication.
urbanization and invasive species, it now only comprises 15% of
its previous habitat. The Coastal Sage Scrub ecosystem is a rare
ecosystem globally and is important to many endangered spe-
cies, both plant and animal. It is characterized by aromatic and
drought-deciduous shrub covered lands consisting of black sage
(Salvia mellifera), white sage (Salvia apiana), and lemonade-
berry (Rhus integrifolia) among other shrubs succulents and cacti.
This study looked at the effect invasive European Grasses are
having on the soil and microbial communities of the Coastal Sage
Scrub ecosystem of Mission Trails Regional Park. Eighteen soil
colors were collected under shrubs and from gaps between
shrubs in two sites. The sites differed by high and low inva-
sion. Soil temperature, respiration rate, organic matter content
and water content were measured on each sample collected.
A substrate induced respiration (SIR) experiment was also run
using glucose and salicylic acid as substrates, to determine the
effect of invasive plants on the metabolism of Carbon by micro-
bial communities. Results showed highest water content in the
gaps of the low invasion site. There were no significant effects of
plant type or site on soil respiration or SIR, though there was a
trend toward lowered salicylate SIR in gaps of the highly invaded
site. Soil respiration was highly correlated with soil temperature.
There was also a significant relationship between glucose SIR and
organic matter content. At this early stage in the study there is al-
ready evidence for the alteration of the habitat by invasive plants,
particularly in terms of the water cycle, but further investigation is
needed to understand these effects and their mechanisms.

#269 8:45 am
Effects of Habitat Fragmentation and Patch Size on Recruitment and Abundance of Kelp Forest
Fishes
Andres Deza, Biology
Todd Anderson, Biology
Habitat loss, from both natural and anthropogenic disturbance,
has been described as the process of both loss and fragmenta-
tion in a landscape context. Although studies of fragmentation
in marine landscapes are relatively few, they are most prevalent
in seagrass beds and extremely rare in temperate reef systems.
Moreover, the effects of habitat fragmentation have not been
explored extensively for marine fishes, although other aspects
of fish-habitat relationships are well documented. In this study,
we investigated the patch dynamics effects and of fragmenta-
tion on recruitment and abundance of older life-stage fishes
associated with the canopy forming kelp Macrocystis pyrifera.
To examine the relationship of recruitment and habitat area at
smaller scales, M. pyrifera was translocated and anchored to a
sandy substratum constructing a kelp habitat, varying in area
and number of kelp individuals. In order to investigate the effects
of habitat fragmentation, we experimentally removed M. pyrifera

#270 9:00 am
Predation in Eel Grass Beds: Do Trophic Manipulations Result in Cascading Effects?
Levi Lewis, Ecology
Todd Anderson, Biology
Seagrasses provide important nursery grounds to fishes and
invertebrates throughout the world. Although much work has
been conducted in these habitats, it remains unclear how trophic
interactions influence ecosystem function in seagrass beds.
Previous work suggests that an abundance of fishes that feed on
invertebrate grazers may, in turn, allow epiphytic algae to grow
and smother seagrasses. The aim of our research is to explore
the importance of microcarnivorous fishes in the functioning of
eelgrass (Zostera marina) habitats in San Diego Bay, California.
We conducted a 12-wk field experiment in summer 2007 for
which we manipulated the abundance of microcarnivorous fishes
and observed their direct and indirect effects on invertebrates,
algae, and eelgrass performance. We used the following four
treatments: fish enclosures, fish exclosures, open plots, and
cage controls. Contrary to our expectations, our results indicate
that fishes had positive indirect effects on eelgrass performance
(e.g., growth); possibly by directly removing invertebrates which
appeared to damage eelgrass leaves. These results suggest that
microcarnivorous fishes exert top-down effects that ultimately
benefit eelgrass.

#271 9:15 am
Atlas to the Terrestrial Slugs and Snails of Western Washington: Documenting Invertebrate Species
and Populations
Casey Richart, Evolutionary Biology
Marshal Hedin, Biology
In the last five years, surveys of leaf-litter fauna in the Pacific
Northwest have resulted in the discovery of numerous new spe-
cies of slugs, millipedes, and harvestmen. For example, about
50 new species of millipedes have been discovered; 20 or so
are published including a new family and three new genera.
Many of these discoveries were followed by encountering additional populations; however, some populations are still known only from their type locality. Are these species highly endemic or have we not yet encountered additional populations? Here I outline research that aims to 1) identify the species present, 2) determine the geographic extent of these species, and 3) infer the evolutionary histories that result in these distributions. Standardized, thorough surveys across the landscape will identify areas of high biodiversity, which are of utmost importance to conservative efforts. A baseline will be established from which future researchers can infer long-term trends. This work is timely in that many of these species have never been documented. If the current major extinction event includes loss of species in this litter fauna, documenting their presence would be invaluable. Here I outline this methodology and present the current status of this research using terrestrial gastropods of western Washington.

Session C-6
Oral Presentation: Literature Through the Ages
Saturday, March 1st, 2008, 8:30 am
Location: Quetzalcoatl B

#272 8:30 am

Reading the Tragedy of the Maid: Reading Myself
Stacy Furrer, English
Barry Stampfl, Imperial Valley Campus

Resisting a more formal, traditional view of Beaumont and Fletcher’s English drama, The Maid’s Tragedy, I am addressing specifically the character of Evadne, who has generally been regarded as an immoral, uncaring woman who was unfaithful to her husband. My approach incorporates an intimate relationship with the text, utilizing an excerpt from my work-in-progress, a memoir of my childhood as a survivor of physical and sexual abuse. This approach is formally known as autobiographical literary criticism, and has been the subject of numerous articles, as well as a book called, The Intimate Critique, edited by Diane P. Freedman, et.al. By juxtaposing The Maid’s Tragedy with my personal history, I hope to illuminate both how the The Maid’s Tragedy is reflected in my life as well as how rich the experience is to be a reader emotionally engaged with the text.

#273 8:45 am

Allowing Sulpicia Agency
Emily Pace, History
Elizabeth Pollard, History

The works of Sulpicia have long been neglected by scholars of antiquity. Her poetry, originally attributed to a male poet, was no longer considered valuable to scholars after the authorship was given to a woman. Her poetry is the only extant writing left to us by a Roman woman. As such, Sulpicia’s writings are invaluable to the study of Greco-Roman history. To combat the current view concerning Sulpicia’s poetry, this paper closely examines her work’s content, rather than form. The debate amongst classical scholars focuses on how her poetry is constructed, more than what she related to the audience. In order to prove the current view of Sulpicia is inaccurate, this paper reexamines the writings of the ancient male writers to understand ancient views on the writing and education of women. The focus of the paper then turns to some of the recurring themes of her poetry. By breaking down each of her poems, definite themes began to emerge. Sulpicia’s writings illuminate the life of a Roman woman. For the first time a woman was speaking to us about her problems, her hopes, and her disappointments. The women of Rome were not silent and it is no longer productive for the field to ignore their strongest voice. This paper illustrates what Sulpicia can tell us about Roman womanhood, a project that is long overdue. Sulpicia has finally taken back the authorship of her works and may soon regain the authorship of more Roman poetry. Sulpicia’s work shows that she is the absolute embodiment of a woman in Rome, struggling to balance social pressures and her own needs. Sulpicia left clues in her writing, but scholars must be willing to read against the grain and embrace her and her writings as the treasures of the ancient world they so clearly are.

#274 9:00 am

The Transformation of the Fairy Tale Genre: A Postmodern Analysis
Ellen Nef, English
Carole Scott

When studying the evolution of fairy tales from folk roots to their modern adaptations, one begins to see that the appropriation and adjustment of the tales is reflective not only of how their authors perceive children—the primary recipients of fairy tales—but also of the wider reference of the culture itself within which those children live. Indeed, Jack Zipes, a revolutionary figure in Fairy Tale studies, has argued that “in each new stage of civilization… the symbols and configurations of the tales [are] endowed with new meaning, transformed, or eliminated in reaction to the needs and conflicts of the people within the social order” (2006). This study begins to explore the social and cultural implications of meaning within the texts, using “Little Red Riding Hood” as a case study from its folk form, to Charles Perrault’s moral adaptation; and through the Grimms’ sense of justice and punishment to its eclectic picture book revisions of recent years. My research began with an exploration and close analysis of primary texts, followed by a contextual exploration into the extensive historical and social research of Jack Zipes and Terri Windling, as well as Bruno
Bettelheim’s psychological explorations in his “Uses of Enchantment: The Meaning and Importance of Fairy Tales.” When investigating the transformation of contemporary picture book adaptations, Carole Scott and Maria Nikolajeva’s text “How Picturebooks Work” acted as a primary frame of reference. Research showed various trends in recent fairy tale adaptations that included a distinct intertextuality of forms, atypical gender behaviors, unusual and unexpected narrative perspectives, as well as a metafictive exposition of the text’s own constructed nature. Combined with an heterogeneous pastiche of illustrative styles, and ironic textual and visual contradictions, these texts reflect the transformation of the tales and their place in the cultural context of postmodernism.

#275 9:15 am  
**The Transformation of Witches in Children’s and Young Adult Literature**  
Marie Soriano, English  
June Cummins, English and Comparative Literature  

It used to be that witches in children’s and young adult literature were almost always adult villains, but now they are commonly child protagonists. How, when and why did this shift occur? I suspected this change in witches, from villains to heroes, happened as a result of Second Wave feminism, that is the Women’s Movement of the 1960s and 1970s, and the emergence of Wicca and witchcraft as a religion during the 1970s and 1980s. In order to conduct my research, I read books and scholarly articles about Second Wave feminism and Wicca. I also studied witches from historical and cultural perspectives, studying their roles in the Hebrew Bible, during the Middle Ages and the European Witch-craze, through Romanticism and the popularity of the Grimms’ Fairy Tales. I read as many children’s and young adult novels as I could, both old and modern, featuring witches. I found that Second Wave feminism and the growing interest in Wicca and witchcraft did, in fact, inspire the transformation of witches in literature. Modern children’s and young adult novels featuring witches often include Wiccan elements and young feminist protagonists. In addition, sometimes witches in novels are also boys, as is true in Wicca. Furthermore, because of Wicca, witches are now being portrayed in terms of multiculturalism, often as having their own traditions and customs. I believe that the increasing tolerance of multiculturalism and diversity have influenced the transformation of the witch from threatening “other” to acceptable citizen. Evil witches still do appear in novels for children and young adults; however, alongside them are good witches—often child and young adult protagonists. Witches are continuing to evolve, not only because of feminism and Wicca, but also because of multiculturalism. Witches in children’s and young adult literature will never be the same.

#276 9:30 am  
**Proteus as Ur-Character in Kurt Vonnegut’s Early Fiction**  
Mark Young, English  
William Nericcio, English and Comparative Literature  

Though the early fiction of Kurt Vonnegut has received major critical attention, particularly from Charles Reed, Steven Lundquist, and Jerome Klinkowitz, these critics have failed to recognize the shared characteristic of Vonnegut’s protagonists, that is, their unstable identities. Through a close textual analysis of Vonnegut’s erratic leading men in his short fiction, as well as the novels, Player Piano, The Sirens of Titan, Mother Night, Cat’s Cradle, I connect these personas to their “ur-character,” or literary prototype, the Greek mythological shape-shifter, Proteus. Since the allusion recurs time and again in Vonnegut’s early work, I draw parallels between this trait and Vonnegut’s world view, as well as conclude that the protean quality is central to understanding Vonnegut’s process in writing his later masterpiece, Slaughterhouse-five.

#277 9:45 am  
**Muriel Rukeyser’s Wars of Compassion and Possibility**  
Veronica Andrew, English  
Sandra Alcosser, English and Comparative Literature  

The title of my paper is “Muriel Rukeyser’s Wars of Compassion and Possibility.” In it, I explore the life and work of the overlooked American early feminist poet Muriel Rukeyser, specifically how her poetry and prose “fought wars”—gave voice to her own firmly-held beliefs about such matters as social justice, violence, and the purposes of poetry. My paper looks closely at three poems from, respectively, her early, mid, and late career, as well as The Life of Poetry, her book-length discussion of why poetry is, and should be, written. These analyses show that despite the fact that Rukeyser’s work, even from her teenage years, tended to engage in controversial discussion, it went far beyond empty vindictiveness and instead argued for exploration, compassion, and finally, peace.

#278 10:00 am  
**Bret Harte’s Later Stories**  
Alan Silva, English (American Lit)  
Harry Polkinhorn, English and Comparative Literature  

Bret Harte (1836-1902), the first truly prolific and original writer of California, is celebrated for his many representations of the bucolic life of early Anglo-Californian history. However, his later stories show a development from his earlier tales into new interesting settings outside of California. This essay investigates and
Warrior music is one of the oldest musical and social traditions of the Ewe people of Ghana. Ethnographers have analyzed the rhythms, melodies, instrumentation, dances, and social significances independently from one another; however, due to the music's function within Ewe society and this lack of combined information, war songs have not been thoroughly understood in a cultural context, particularly in modern society that is free from war. The purpose of this study is to apply an interdisciplinary approach to the examination of traditional Ewe war songs in order to unveil a deeper understanding of their value in contemporary Ewe society. Two warrior groups are represented in this paper: Asafo and Fontomfrom. Each group performs a unique style of war music and serves a different function within society. Asafo is a community-based group, closely related to the chieftdom, that is designed to train and lead the military utilizing call and response phrases. Fontomfrom is a group controlled by the state that utilizes talking drums to relay messages to the community. Using bibliographic references, transcription analyses, and my field research, which includes observations, conversation, and musical training, this study provides a more thorough understanding of the role of warrior music in times of peace in modern Ewe society. The study demonstrates that there are links between aspects of Ewe warrior music and social values such as lack of perfectionism and a pluralistic worldview. The connections between musical qualities and social values are difficult to recognize without applying multiple aspects of the music. Previous studies have established that the history of African music is transmitted orally; however, it is also transmitted through dance movements, calls made on instruments that mimic speech, and physical characteristics of the instruments used. This musical history transmits lessons of morality and wisdom through centuries including times of peace.

#280 10:35 am

_Ewe War Songs of Ghana: Revealing Social Values and Attitudes through their Music and Dance_

Laurel Grinnell, Ethnomusicology
J. Mitzi Kolar, Music and Dance

Ewe music is one of the oldest musical and social traditions of the Ewe people of Ghana. Ethnographers have analyzed the rhythms, melodies, instrumentation, dances, and social significances independently from one another; however, due to the music's function within Ewe society and this lack of combined information, war songs have not been thoroughly understood in a cultural context, particularly in modern society that is free from war. The purpose of this study is to apply an interdisciplinary approach to the examination of traditional Ewe war songs in order to unveil a deeper understanding of their value in contemporary Ewe society. Two warrior groups are represented in this paper: Asafo and Fontomfrom. Each group performs a unique style of war music and serves a different function within society. Asafo is a community-based group, closely related to the chieftdom, that is designed to train and lead the military utilizing call and response phrases. Fontomfrom is a group controlled by the state that utilizes talking drums to relay messages to the community. Using bibliographic references, transcription analyses, and my field research, which includes observations, conversation, and musical training, this study provides a more thorough understanding of the role of warrior music in times of peace in modern Ewe society. The study demonstrates that there are links between aspects of Ewe warrior music and social values such as lack of perfectionism and a pluralistic worldview. The connections between musical qualities and social values are difficult to recognize without applying multiple aspects of the music. Previous studies have established that the history of African music is transmitted orally; however, it is also transmitted through dance movements, calls made on instruments that mimic speech, and physical characteristics of the instruments used. This musical history transmits lessons of morality and wisdom through centuries including times of peace.

#279 10:15 am

_Medea: Mind Games and Manipulation_

Joan Hurwit, Theatre
D.J. Hopkins, Theatre Television and Film

The ancient Greek tragedy Medea tells the story of an outsider presented in the context of a society that has no respect for, or understanding of, that outsider. The Greek tragedy introduced one of the first female anti-heroes in dramatic literature. For centuries since then, this play has been twisted and turned into political metaphors for racial, gender, and social conflict. This theatre directing and scenic design project emphasizes the character's desperate fight for control in a setting where she is bound to fail. In the end, like Euripides, I leave it to the audience to decide whether society or Medea herself is to blame for the tragic outcome—what is right and who is wrong. Theatre possesses a transformative quality, and to create good theatre, it is essential to balance the creative choices in interpreting the text with presenting the material in such a way that the audience will connect with it. My setting is an impoverished neighborhood in San Diego where Medea is barely surviving as a Mexican immigrant, struggling to acclimate to life in America while desperately trying to hold onto her husband, her husband, and her sanity. Medea manipulates her existence into a game of survival. To emphasize this metaphor, I've designed the set to resemble a pinball game, with Medea at the center feeling victimized by all the elements around her. My Medea ventures into new territory, combining reality and abstraction on stage at the same time. My research strives to compliment the playwright's original intent while incorporating contemporary illustrations of urgency, desperation and insanity to attract and maintain today’s theatre-going audience.

#281 10:55 am

_Desire_

Lilyana Bekic, Jewelry and Metals
Helen Shirk, Art Design and Art History

The research for this project focuses primarily on issues many women face concerning female identity in American culture. Women in America are confronted with a long list of social expectations; through popular culture, our society dictates what women should be, how they should behave, and what they should look like. The result of my research was the creation of a body of work titled Desire, consisting of six pieces of metalwork, two rubber pieces and five fiber pieces. These pieces explore perceptions women have about body image, ideals of beauty, and roles, as well as options that they may consider in dealing with them. My ideas draw on personal experiences, opinions, and research of historical and contemporary ideas and objects related to the subject; all of my work references the female in either form or
imagery. The pieces include wearable and non-wearable objects, including jewelry, clothing, and hollowware. Format, materials, and techniques were chosen to convey my concepts in the most effective, expressive, and communicative way. A variety of materials were used such as silver, gold, plastics, fabric, felt, rubber, confectionaries, wood, alabaster, stones, and found objects. The primary method of construction of the pieces is fabrication, in addition to metal forming, turning, felt blocking, fabric printing/construction, casting, forging, carving, and stone setting. A public exhibition of Desire was presented in the Flor Y Canto Gallery at San Diego State University, November 3-8, 2007. Through my work I hope to engage the viewer in a dialogue, not to pass judgment on anyone’s actions or choices. During the exhibition I could experience the audience reaction to the work and discuss it with the viewers. Because these issues were both personal to me and also part of everyday life, people felt at ease relating their own experiences and reactions to the subject.

**#282 11:15 am**

**An Analysis of Selected Improvisational Tools of Oscar Peterson**

Reka Bodis-Parker, Jazz Performance  
J. Mitzi Kolar, Music and Dance

Jazz pianist Oscar Peterson’s improvisational style is characterized by melodic lines played at fast tempi, uniquely rich harmonies, and swinging rhythms that are unparalleled by any artist in his field. While many of his critiques praise Peterson’s bravura piano playing, extensive analytical studies of Peterson’s improvisations are rare. The purpose of this research is to provide detailed transcription analyses of selected improvisational techniques of Oscar Peterson. This study also offers information for jazz musicians wishing to incorporate Peterson’s technical and musical ideas into their performances. The research includes a review of biographical information, articles, and other academic writings about Peterson and his musical performance in order to reveal analytical studies that are currently available about his improvisational techniques. The categories selected for analysis are based on those areas of Peterson’s improvisational techniques that seemed relatively unexplored in previous studies. The selected categories are: (1) right-hand motifs, (2) two-handed chord voicings, (3) accompaniment of a bassist, and (4) use of stride bass in his solo playing. The frequent use of a particular technique being explored and the degree of contrast between solos within each category are the criteria for selecting a solo for transcription. The study of his right-hand motifs reveals Peterson’s use of rhythm and non-chord tones to emphasize significant points in his improvisations and to break the monotony of lengthy motifs. The analyses of Peterson’s chord voicings indicate evidence of consistent voice leading and chord structures that create richly textured, unique harmonies. As an accompanist, Peterson provides rhythmic counterpoint to his bass player’s improvisation with unparalleled precision. In his stride bass, Peterson combines contemporary rhythmic and harmonic elements with traditional styles. In conclusion, this study reveals Peterson’s methodical use of improvisational tools in his performances and provides a guide for students of jazz seeking to improve their soloing techniques.

**Session C-8**

**Oral Presentation: Applied Physiology**

Saturday, March 1st, 2008, 10:15 am  
Location: Casa Real

**#283 10:15 am**

**Physiological Effects of TASER® X-26 after Intense Exercise**

Amanda Barnard, Exercise Physiology  
Fred Kolkhorst, Exercise and Nutritional Sciences

As a result of unexplained deaths after TASER exposure, the safety of the device has been questioned. In many situations where the TASER is deployed, suspects are being combative or are fleeing to avoid apprehension. PURPOSE: The purpose of this study was to investigate the physiological effects of a single TASER® X-26 exposure after intense exercise. METHODS: Six healthy deputy sheriffs performed an incremental cycling protocol to 85% of predicted maximal heart rate (6-12 min). Subjects dismounted the bike and were exposed to a 5-s TASER® X-26 electrical discharge. Minute ventilation (VE), respiratory rate (RR), and tidal volume (TV) were measured at baseline, and 5 min and 60 min post-deployment. Arterialized capillary blood was sampled at baseline, immediately post exercise, and 1 min, 10 min, and 60 min post-deployment. Blood pH, and lactate and bicarbonate (HCO3⁻) concentrations were measured. RESULTS: RM ANOVA indicated there were no treatment effects. However, there was a time effect for pH, lactate and HCO3⁻ concentrations, and RR and VE (p < 0.05). Exercise caused a decrease in blood pH and an increase in lactate concentration, RR, and VE, but these variables returned to baseline within 60 min. Although, exercise caused physiological stress, results suggested there was no additional stress from the TASER® X-26 exposure. CONCLUSION: These data suggest that exposure to a 5-s TASER electrical discharge adds no physiological effects beyond those resulting from brief intense exercise alone.
Jeanne Nichols, Exercise and Nutritional Sciences
Colleen Costigan, Exercise Physiology
Runners Versus Non-athletes
A Comparison of the Female Athlete Triad in...of the observed low BMD and its long-term risk of osteoporosis. More research is crucial to determine the underlying cause of the observed low BMD and its long-term risk of osteoporosis. These data indicate that adolescent runners may be at greater risk than non-athletes who met the criteria for low bone mass. However, the finding of a significantly greater number of runners than non-athletes who met the criteria for low bone mass (p=0.11). After adjusting for BMI, there were no significant differences between runners and non-athletes on mean scores of any of the five disordered eating variables. However, after controlling for age, gynecologic age, and lean tissue mass, athletes had significantly lower spine BMD (1.054 ±0.122 g · cm²) than non-athletes (1.174 ±0.104 g · cm², P=0.01). The small sample size of the non-athlete group may have been a limiting factor in determining significant differences between the two groups for the disordered eating and menstrual dysfunction variables. However, the finding of a significantly greater number of runners than non-athletes who met the criteria for low bone mass is consistent with previous studies in collegiate female runners. These data indicate that adolescent runners may be at greater risk for health consequences associated with the female athlete triad. More research is crucial to determine the underlying cause of the observed low BMD and its long-term risk of osteoporosis.

#284 10:30 am
A Comparison of the Female Athlete Triad in Runners Versus Non-athletes
Colleen Costigan, Exercise Physiology
Jeanne Nichols, Exercise and Nutritional Sciences
The objective of this paper is to compare health disorders of the female athlete triad (disordered eating, menstrual irregularity, and low bone mass) in female distance runners and non-athletes. Runners (N=93) were recruited from high school cross-country teams in San Diego County. Non-athletes (N=8) were recruited from the San Diego community, and were matched to the runners by age and body mass index (BMI). Disordered eating and menstrual status were determined by interview-assisted questionnaires. Bone mineral density (BMD) was measured by dual-energy x-ray absorptiometry at the hip, spine (L1-L4), and total body. Twelve and one-half percent of the runners compared to 9.4% of the non-athletes met the criteria for disordered eating (p>0.05); 31.3% of the runners compared to 12.5% of the non-athletes met the criteria for menstrual irregularity (p>0.05), and 56% of the runners compared to 12.5% of the non-runners met the criteria for low BMD (p=0.11). After adjusting for BMI, there were no significant differences between runners and non-athletes on any of the five disordered eating variables. However, after controlling for age, gynecologic age, and lean tissue mass, athletes had significantly lower spine BMD (1.054 ±0.122 g · cm²) than non-athletes (1.174 ±0.104 g · cm², P=0.01). The small sample size of the non-athlete group may have been a limiting factor in determining significant differences between the two groups for the disordered eating and menstrual dysfunction variables. However, the finding of a significantly greater number of runners than non-athletes who met the criteria for low bone mass is consistent with previous studies in collegiate female runners. These data indicate that adolescent runners may be at greater risk for health consequences associated with the female athlete triad. More research is crucial to determine the underlying cause of the observed low BMD and its long-term risk of osteoporosis.

#285 10:45 am
Relationships Between Physical Fitness, Physical Activity and Psychosocial Variables in Breast Cancer Survivors
Deborah Taylor, Exercise Physiology
Jeanne Nichols, Exercise and Nutritional Sciences
Introduction: Survivors of breast cancer not only experience distressing physical symptoms from surgery and/or adjuvant treatment, but they also are faced with psychosocial challenges, including extreme fatigue, depression, and negative self-image. Despite growing scientific evidence that increased physical activity (PA) may mitigate the harmful effects of breast cancer on certain psychosocial factors, the present research is equivocal. The purpose of this cross-sectional study was to investigate the relationships between cardiorespiratory fitness (CRF), PA, and psychosocial outcomes in breast cancer survivors. Methods: Baseline data from a randomized clinical trial on overweight and obese breast cancer survivors (N = 244) were examined. CRF was determined by a submaximal graded exercise test with estimation of VO2max (ml·kg·min⁻¹). PA, depressive symptoms, total fatigue, and global self-esteem were assessed with self-report measures. One-way analyses of covariance, with age as a covariate, examined CRF and PA group (low/high) differences on depressive symptoms, total fatigue, and global self-esteem. Pearson product moment correlations were conducted to determine the associations among these variables. Results: ANCOVA revealed no significant group differences for CRF on depressive symptoms, total fatigue, and global self-esteem (p > 0.50, p > 0.35, and p > 0.50, respectively). Similarly, there were no significant PA group differences on depressive symptoms, total fatigue, and global self-esteem (p > 0.15, p > 0.35, and p > 0.60, respectively). Bivariate correlations suggested that both CRF and PA were unrelated to any of the psychosocial variables. Conclusion: In this sample of breast cancer survivors, CRF and PA were not associated with the psychosocial variables of interest. However, low PA variability among the participants may have influenced the current findings. To better identify whether CRF and PA are associated with reduced psychosocial symptoms in this population, further research should examine the effects of CRF and PA changes across time on psychosocial outcomes.
**#286 11:00 am**

**On the Determination of Ventilatory Threshold and Respiratory Compensation Point via Respiratory Frequency**

Daniel Cannon, Exercise Physiology  
Michael J. Buono, Exercise and Nutritional Sciences

Previous investigations have reported respiratory frequency (fR) analysis for determining ventilatory threshold (θ Vent) and respiratory compensation point (RCP) during cycle ergometry. The methods of identifying fR thresholds have been largely subjective and/or unable to identify both θ Vent and RCP. Furthermore, the analysis techniques employed in previous works have made conclusions about the validity of fR analysis difficult or impossible to make. This study examined the validity of a quantitative respiratory frequency (fR) analysis to detect the ventilatory threshold θ Vent and respiratory compensation point (RCP). Thirty-six amateur competitive cyclists completed a maximal graded exercise test on an electromagnetically-braked cycle ergometer. V′ E and RCP were determined using multiple gas exchange criteria and by fR analysis (θ Vent, fR and RCP/fR), employing an iterative least-squares linear regression technique. Fifteen subjects were excluded from the analyses due to a low signal-to-noise ratio and high risk for pseudo-threshold resulting from hyperventilation early in the exercise protocol. A Bland-Altman procedure for inter-analysis comparison completed on the remaining participants’ data (n = 21; age = 29 ± 7 years; height = 177 ± 9 cm; weight = 76.0 ± 15.8 kg; VO2 max = 4.415 ± 0.971 l min−1) revealed mean bias ± 95% Limits of Agreement (LOA) of 1.53 ± 50.2 W for θ Vent and fR. The same inter-analysis comparison (n = 21) for RCP and RCP/fR resulted in a mean bias ± LOA of 12.6 ± 26.9 W. The analysis techniques in the present investigation revealed substantial limits of agreement and/or bias for all estimations, and these data indicated fR analyses were unsatisfactory to determine θ Vent and RCP in trained cyclists.

**#287 11:15 am**

**Retrospective Chart Review of Patients who have Had Surgery for Exostosis.**

John King, Audiology  
Peter Torre, Speech Language and Hearing Sciences

The purpose of this study was to identify the difference in the severity of exostosis between ears, post-surgical complications, and hearing sensitivity pre and post surgery. Charts from patients who had exostosis surgery between 1990 to 2007 were reviewed. Specifically, data on occurrence of exostosis per ear, post-surgical complications, and hearing sensitivity pre and post-surgery. Patients were categorized as either having previous ear surgery or no previous ear surgery. There was a significant difference in the severity of exostosis between ears, such that the right ear had greater occlusion than the left ear. No significant difference was found in the rate of complications between the two groups. For all patients, the three most common complications following exostosis surgery were exposed bone in the external auditory meatus, tinnitus, and skin graft. In the group with no previous surgery, exposed bone in the external auditory meatus and tinnitus were most common from post-surgery notes. In the group with previous surgery for exostosis, dizziness and skin graft were most common. There was no significant difference in thresholds when comparing pre to post-surgical audiologic results with the exception of 8 kHz in the right ear for the previous surgery group which was significantly better following the surgery. Further research is needed to examine why there is a greater amount of occlusion due to exostosis in right ears as compared to left ears.

**#288 11:30 am**

**Investigating Cerebral Perfusion in Stroke Survivors with Aphasia Using Arterial Spin Labeling**

Kathleen Brumm, Language and Communicative Disorders  
Tracy Love, Speech Language and Hearing Sciences

Magnetic Resonance Perfusion Imaging measures regional cerebral blood flow (rCBF), the rate at which blood is delivered to brain tissue. Research indicates that reduced rCBF, or hypoperfusion, in stroke survivors with aphasia correlates with suboptimal neural functioning in language-related neural areas that remain structurally alive (Love et al., 2002). Decreased rCBF may therefore allow neural tissue to remain structurally intact, without being fully functional. Hypoperfusion may thus help account for cognitive deficits that are uncorrelated with structural imaging findings. Given this need for further investigation regarding hypoperfusion in aphasia, we examined perfusion data from aphasic stroke survivors to determine both the time-course and mean levels of hypoperfusion. Five aphasic stroke survivors underwent measurement of both rate and mean levels of rCBF (several participants underwent multiple imaging sessions as part of an ongoing study). Eleven neurologically-unimpaired controls were included, 7 of whom underwent measurement of rCBF rate, and 4 of whom underwent measurement rCBF mean levels. Perfusion data were acquired using a Pulsed Arterial Spin Labeling technique (Liu & Brown, 2007), in which radiofrequency pulses magnetically tag arterial blood water. The tagged water is delivered to brain tissue, and images are acquired following a post-labeling delay. Both rate and mean levels of rCBF were quantified. Results indicate that aphasic stroke survivors showed overall lower levels of CBF, relative to controls (aphasia mean = 37.34 mL blood/100g tissue/min; control mean = 71.15 mL blood/100g tissue/min; F(1,16) = 24.722, p < 0.0001). The data also indicate a slower time-course of rCBF among the aphasic patients, relative to controls (aphasia mean = 886.23 ms transit...
time; control mean = 567.38 ms transit time; F(1,8) = 10.206, p = 0.01). Implications of slowed and reduced rCBF in aphasic stroke survivors will be discussed, with regards to future lines of research investigating CBF in this population.

Session C-9
Oral Presentation: Applied Physiology
Saturday, March 1st, 2008, 2008, 10:15 am
Location: Casa Real

#289 10:15 am
Not from Here, Not from There: In Search of Identity
Santos Zuniga, Chicana and Chicano Studies
Jose Rodolfo Jacobo, Chicana and Chicano Studies

The purpose of this research is to conduct a study on issues of identity in the Mexican origin student population of San Diego State University. As member of M.E.Ch.A (Movimiento Estudiantil Chicana/o de Aztlán) and as a student at San Diego State University I have witnessed the struggle of identity in the Mexican origin student population. I propose that the struggle for identity is rooted in the history of discrimination in the United States. This struggle for identity reached a high point during the civil rights movement giving rise to Chicanismo. Chicanismo is one response to the decades of discrimination of the Mexican origin people in the United States. In a sense, it gave people of Mexican decent a name and a place when historically they had none. To conduct this study I will first, look at the historical patterns that marginalized the Mexican origin population. Secondly, I will analyze how such experience lead to the search of identity and the emergence of Chicanismo and Aztlanismo in the late sixties and early seventies. Last, I will conduct a quantitative and study on identity among young Mexican origin students at San Diego State University.

#290 10:30 am
Socioeconomics Status of Court Interpreters in California
Beneranda Calderon, Spanish
Rogelio Reyes, Imperial Valley Campus

At the Newport Beach Conference, interpreters from all over the United State voiced their concern about their prospects for future improvement in their status as court interpreters. In the survey taken most of them declared to be over the age of 50, and they expressed a deep concern about their salaries, benefits and honoraria, which has not kept abreast with the cost of living. Also, the majority of these interpreters agreed, that their socioeconomic status did not accurately reflect their contribution to society and to their state. While certified/registered interpreters are required to meet high demands from their educations, they are not compensated appropriately.

#291 10:45 am
Representation of Sports in Contemporary Mexican Art
Christine Scott, Interdisciplinary Studies
Nancy Deffebach, Art Design and Art History

Sports can be defined merely as a source of diversion, but they can also represent political, social and economic manifestations. Sports are undoubtedly about competition, pride, passion, unity and identity, however they are also about thoughts, ideas and causes. A variety of Mexican artists have approached the subject of sports through different visual media such as performance, religious and contemporary art and their works exemplify how sports are much more than just an athletic contest. The artists that will be highlighted in this paper include: Gustavo Artigas, Ruben Ortiz-Torres and Minerva Cuevas. Artigas’ work has shown how border politics can be socially critiqued and possibly negotiated through a performance art piece about sports. Ortiz Torres has used the playful medium of baseball caps to analyze the prevalence of sportswear as popular attire and racist stereotypical images used as sporting teams’ mascots. Minerva Cuevas attacks capitalism and the global economy through her photos of men in sporting accoutrement in Mexico City. Lastly, retablos (votive paintings) have shown that sports are indeed a part of the fabric of society, deeply embedded and tied to concepts of religion and divinity. This paper will use a semiotic analysis to analyze and deconstruct sports in contemporary Mexican art.

#292 11:00 am
The Public Identity of Religion
Emily Powers, Geography
Larry Ford, Geography

This study specifically investigates the importance of the visualization of religion on the landscape through an examination of a variety of identifiable religious constructions. In particular, I am interested in determining what sort of public identity religion has in the urban environment. By considering the impact of places of worship and religiously affiliated schools and businesses as well as personal body adornment, I suggest that religion brings a public face to the urban landscape outside of the common church and state debate. Research questions include: what kind of “claim to space” do religions portray in the public realm? How do certain religions participate in the public? How do religiously affiliated buildings “fit in” with their surroundings? How does
one’s personal religious identity mix with public identity? In addition to an extensive literature review on public identity and religious space, I consider several specific spaces with visible religious connections. My sites of study are in cities such as San Diego, California and Atlanta, Georgia. San Diego is known for its diversity and ranks at the top of the charts in terms of population and diversity of religions. While always having a large, visible, Christian population, the Atlanta area is now religiously unique. It is home to the largest Hindu temple in the United States and a Mosque estimated to serve over 5000 Muslims. Both Atlanta and San Diego are good examples for investigating ideas of religiously impacted landscapes.

**#293 11:15 am**

*Language, Politics, and Identity in Northern Italy*

Jessica Plotner, Applied Linguistics
Eniko Csomay, Linguistics and Asian/Middle Eastern Languages

Venetian is one of the few varieties in Italy spoken by a majority of the inhabitants in its geographical region (Kinder and Savini, 2004), and is labeled at times as a dialect and other times as a language by scholars (Gordon, 2005; Zulin, 2007). Recent linguistic studies have not been able to paint a comprehensive picture of the language attitudes of Italian-dialectal bilinguals in contemporary Italy partly because Italian notions of “dialect” and “language” have become blurred over the years due to social and political influences (Sonino, 1989; Tose, 2004; Berruto, 1989). Hence, earlier studies have failed to apply the traditional paradigms on diglossia and language domain to analyze the language situation in Italy (Berruto, 1989). Additionally, no empirical studies reported on the language attitudes of Italian-dialectal bilinguals towards their own variety and towards standard Italian; nor do they investigate the Italian-dialectal bilingual speakers’ opinions regarding contemporary language policy. This study focuses on how Italian-Venetian bilingual speakers view Italian and Venetian and how they view language legislation in Italy as it is situated in the European Union. More specifically, it examines how Italian-Venetians use Venetian, what the language attitudes of Italian-Venetians are, and how Venetians view current policies and the future of language policy. Nine Italian-Venetian bilinguals participated in small group interviews and twenty-one completed questionnaires. Preliminary results indicate that Venetian is primarily used in spoken contexts while Italian is often used in written ones. Furthermore, while Italian-Venetians have mixed feelings regarding whether Venetian should be classified as a language or a dialect, they strongly feel that Venetian is an important component of their identity and thus that the Italian government should protect it.

**#294 11:30 am**

*Sexually Transmitted Identities: Identification as an Online Rhetorical Coping Strategy*

Jennifer Malkowski, Communication
Valerie Renegar, Communication

Sometimes called “self-help groups” or “social support groups”, online forums are places on the Internet where people can interact with others who have similar interests or who face similar circumstances. In this rhetorical analysis, the online forum “HPV”, found on the website positivesingles.com (2007), was examined in order to better understand the empowering aspects of this technological coping mechanism. Responses to four popular forum threads were analyzed in order to discern how people with a sexually transmitted disease communicate about their diagnoses, how they disclose their condition to others, and how they gain control over their situation via the online forum. It was postulated that the invitational nature of the online forum, through sharing narratives and rhetorical listening, facilitates coping via inter-member identification. An analysis of the forum revealed three empowering strategies used by members to establish identification within the online community: (a) victimization, (b) self-determination, and (c) responsibility. The results of this analysis suggest that understanding how one particular online forum facilitates a process of identification through strategies offered by invitational rhetoric helps to shed light on the giving and receiving of support among other computer mediated social support groups as well as other face-to-face self-help interactions.

**Session C-10**

**Oral Presentation: Violence and Relationships**

Saturday, March 1st, 2008, 10:15 am

Location: Council Chambers

**#295 10:15 am**

*Death Meditation, Terror Management Theory and Worldview Defense*

Ana Duenas, Psychology
Richard Graf, Psychology

Terror management theory (Greenberg, Pyszczynski, & Solomon, 1986) begins with the assumption that humans share with other animals an instinctive drive for continued existence. This drive, when combined with the uniquely human awareness of vulnerabilities and mortality, creates the potential for paralyzing terror. This terror is managed by means of a cultural anxiety-buffer that consists of the person’s individualized version of the cultural
A STUDENT RESEARCH SYMPOSIUM 2008

Abstr Acts

Audrey Hokoda, Child and Family Development
Nicole Dombek-Smith, Psychology

Peer Abuse Prevention Program

occurrences of victimization, changes in knowledge and attitudes.

The researchers will measure changes in potential learning activities led by SDSU students will be described and classroom lessons. Videotapes and accompanying experiences and monitoring of bullying, teacher training, parent education, purpose of this presentation is to describe the anti-bullying program that is being implemented and evaluated by SDSU students and researchers. The anti-bullying program is adapted from Dan Olweus’ Bullying Prevention Program (Olweus, Linber, & Mihalic, 1999) and includes school-wide policy changes regarding reporting and monitoring of bullying, teacher training, parent education, and classroom lessons. Videotapes and accompanying experiential learning activities led by SDSU students will be described in the presentation. The researchers will measure changes in occurrences of victimization, changes in knowledge and attitudes about bullying, and changes in perceptions of safety, as reported by students and parents. The evaluation will be conducted by researchers associated with SDSU’s Institute for Public Health (IPH) and the design includes a control group and three assessment sessions (a pre-test, post-test, delayed-post).

#297 10:45 am

Examining Authoritarian Parenting, Family Conflict, Depression and Teen Relationship Violence: A Mediation Model

Ellesse Akre, Psychology
Emilio Ulloa, Psychology

Teen relationship violence (TRV) includes a range of abusive behaviors such as, homicide, physical and sexual assault, stalking, and intimidation (Campbell, 1992; Halstead, 1992; Reiss & Roth, 1993: U.S. Attorney’s General Task Force on Family Violence, 1984). Research has shown that authoritarian parenting and depression have been associated with TRV. Research has also shown that family conflict (exposure to violence) is also positively associated with TRV. Most of the research has been done on American Caucasians, therefore the purpose of this study is to examine the relationships among family conflict, depression and teen relationship violence in Mexican adolescents. Results on 204 adolescents (15 to 18 years old) revealed that there are positive correlations between family conflict and depression, depression and victimization of TRV, and family conflict and victimization of TRV. Furthermore, examination of the results showed that depression serves as a mediator for family conflict and victimization of teen relationship violence in Mexican adolescents.

#296 10:30 am

Peer Abuse Prevention Program

Nicole Dombek-Smith, Psychology
Audrey Hokoda, Child and Family Development

Bullying is prevalent in schools throughout the country and is now recognized as a serious problem for all grade levels. As a result, intervention strategies appropriate for this kind of problem are required. The Peer Abuse Prevention Program (PAPP) was designed by San Diego State University and San Diego County Health and Human Services Agency, Office of Violence Prevention. The research program has explored the nature of bullying, how it correlates within the individual and family, and its emotional impact on students; the results have aided in the development of curriculum that has been implemented in middle schools in the Sweetwater Union High School District for the past 5 years. The purpose of this presentation is to describe the anti-bullying program that is being implemented and evaluated by SDSU students and researchers. The anti-bullying program is adapted from Dan Olweus’ Bullying Prevention Program (Olweus, Linber, & Mihalic, 1999) and includes school-wide policy changes regarding reporting and monitoring of bullying, teacher training, parent education, and classroom lessons. Videotapes and accompanying experiential learning activities led by SDSU students will be described in the presentation. The researchers will measure changes in occurrences of victimization, changes in knowledge and attitudes about bullying, and changes in perceptions of safety, as reported by students and parents. The evaluation will be conducted by researchers associated with SDSU’s Institute for Public Health (IPH) and the design includes a control group and three assessment sessions (a pre-test, post-test, delayed-post).

#298 11:00 am

The Role of Acculturation, Acculturative Stress, and Gender in Marital Satisfaction among Mexican Americans in their First Year of Marriage

Denise Widhalm, Psychology
Donna Castaneda, Imperial Valley Campus

Marital relationships are one of the most important relationships established in adulthood, and they have significant consequences for psychological well-being. However, close relationship research based upon Mexican Americans is very limited. Mexican Americans couples likely confront the same conflicts and struggles as couples from any other cultural group, but they must do so while also negotiating two cultural worlds. Therefore, an understanding of the relationship of acculturation and acculturative stress, two important indicators of the differing social and cultural contexts that Mexican Americans inhabit, to marital satisfaction, is important to undertake. This study is an effort to address this issue and the purpose of this preliminary study is to determine the relationship of acculturation, acculturative stress, and gender to
marital satisfaction. A total 30 Mexican American couples, drawn from the community, in their first year of marriage participated in face-to-face interviews that included measures of acculturation (ARSMA-II, Cuellar, I., Arnold, B., & Maldonado, R. (1995); acculturative stress (MASI-Rodriguez, N., Myers, H. F., Bingham Mira, C., & Flores, T., & Garcia-Hernandez, L., 2002); and marital satisfaction (MSI-R-Snyder, D. K. 1997). Data analyses in this study are still ongoing, but based upon available research (e.g., Negy & Snyder, 1997; 2000, 2004), higher acculturation, lower acculturative stress, and being male are expected to be positively related to marital satisfaction. Results from this study can help in future development of early interventions for reducing severity and incidence of marital distress in Mexican American married couples, especially those in their first year of marriage.

The results will be compared to two control groups and findings are expected to indicate that the students who completed the intervention program will have fewer acceptances of violent beliefs, increased use of positive conflict resolution skills, and more control over jealous and obsessive behaviors.

Session C-11
Oral Presentation:
Psycholinguistics and Speech Perceptions
Saturday, March 1st, 2008, 10:15 am
Location: Presidential Suite

#300 10:15 am
The Effects of High-frequency Audibility on the Use of Vocal Tract Length Cues for Talker Segregation
Nicole Conrad, Audiology
Carol Mackersie, Speech Language and Hearing Sciences

Speech understanding in a competing background of other talkers is a challenging task for any listener, especially those with hearing loss. Talker differences in vocal tract length promote the perceptual segregation of talkers by normal-hearing listeners. Because segregation based on vocal-track length cues is dependent on talker differences in mid to high frequency formant streams, these cues may be limited by high-frequency hearing loss due to reduced bandwidth. The purpose of this study was to examine the effects of simulated high-frequency hearing loss on the ability to perceptually segregate the speech of two competing talkers using apparent vocal tract length cues. Normal-hearing listeners with simulated high-frequency hearing loss identified key words in single sentences and in two simultaneously presented sentences. Sentences spoken by one talker were combined in pairs to produce average apparent vocal tract length differences of either 0% (unprocessed) or 38% (typical difference between a male and female talker). The average fundamental frequency was identical for the competing sentences. Simulated high frequency hearing loss above 2500 and 3100 Hz did not reduce intelligibility of key words in single sentences, but did reduce listeners’ use of talker differences cues to segregate target from competing speech. These results suggest that the provision of high-frequency amplification above 2500 and 3100 Hz may be important for the perception of speech in competing talker backgrounds.
#301 10:30 am

Differential Relationships of Spoken and Written Language: Evidence from Two Clinical Populations

Darin Woolpert, Language and Communicative Disorders
Judy Reilly, Psychology

Initially, children with typical development (TD) map their written language directly on to their spoken language. As they grow older, their writing separate into something distinct from their speaking. Children with perinatal stroke (PS) suffer a cerebral insult early in development, leading to cognitive delays that include the domain of language. Children with specific language impairment (LI) show significant language delays despite otherwise normal cognition. In spoken language, both groups show a delay in the acquisition of grammar. Interestingly, children with LI, who have no frank neurological damage, show significantly more delay than children with PS. This study is the first to examine the emergence of spelling ability in these groups, comparing the differences in developmental profiles to those seen in their spoken development. 40 children with PS, 40 children with TD, and 24 children with LI, ages 7 to 17, were administered a standardized spelling test (Woodcock-Johnson 3); asked to write a picture description (“Cookie Theft” from the Boston Diagnostic Aphasia Exam); and to write a spontaneous narrative (“about a time when someone had made them mad or sad”). Both the spelling and picture description tasks elicited a limited vocabulary range, whereas the more cognitively challenging task allowed freedom in word choice. Both the TD and LI groups showed improvement with age, albeit with a delay in the latter group. The PS group’s performance plateaued, and despite their spoken language outcomes, at the oldest age group they fell behind the LI group. These results suggest that the development of spelling skill in the children with PS is actually deviant, whereas in the children with LI it is merely delayed. Overall, the relationship between spoken and written language appears to be qualitatively different in the two groups.

#302 10:45 am

Word Frequency Effects on Lexical Processing in the Auditory Modality as Measured by Event-related Potentials

Marisa Sizemore, Language and Communicative Disorders
Julia Evans, Speech Language and Hearing Sciences

The purpose of this study was to determine the signature ERP waveform of word frequency effects in the auditory modality. ERP studies investigating word frequency effects in the visual modality have shown that words with high frequency of occurrence evoke significantly smaller N400 amplitudes than words with low frequency of occurrence (e.g., Van Petten & Kutas, 1991; Rugg, 1990). The amplitude of the N400 component has been interpreted as reflecting the ease of processing of stimuli (Kutas & Federmeier, 2000). It has been argued, however, that the time course of processing stimuli in the visual modality may be qualitatively different from processing stimuli in the auditory modality. Understanding the difference between visual and auditory processing is not only theoretically important, but also is important for investigations of sentence comprehension in young children and/or individuals with language learning difficulties who may be unable to read printed stimuli. In this study, participants were presented with a series of high and low frequency words matched for initial consonant, word duration, conceptual imageability, neighborhood density, and phonotactic probability. Results showed similarities and differences from previous studies in the visual modality, with effects beginning approximately 500ms post stimulus onset with a large broad negative wave that was significantly more negative for low frequency words. These results indicate that auditory word frequency effects occur later and last longer than visual effects. Future research will determine the time course of these effects by calculating recognition points using a gating task.

#303 11:00 am

Influence of Spanish Proficiency and Phonotactic Probability on Adult Spanish Non-word Repetition

Skott Freedman, Language and Communicative Disorders
Jessica Barlow, Speech Language and Hearing Sciences

This study explored effects of phonotactic probability (PP) and Spanish proficiency (SP) on a repetition task of Spanish-like nonwords (e.g., /kul'nes/), in a group of typical adults varying in SP (None to Full). We were interested in exploring potential advantages of SP on nonword repetition (NWR) with low relative to high PP, especially given the recent claim that NWR is a robust clinical marker for language impairment in children (Gathercole, 2006), and given that these variables have been previously unexplored in Spanish. We predicted that individuals with high SP would outperform individuals with low SP on high PP nonwords, yet perform similarly to individuals with low SP on low PP nonwords. Seventy participants from San Diego State University and University of California, San Diego, were grouped according to a self-rating scale into one of four language proficiency groups: None, Minimal, Advanced, Full. A Spanish NWR task was administered consisting of thirty 2, 3, and 4-syllable nonwords constructed with high/low permissible Spanish PPs (Davis & Perea, 2005). Participants repeated each verbally presented nonword. Percentages of phonemes correct (PPC) were tallied and categorized by word length, PP, and SP. Findings revealed no group differences when comparing PPCs; however, significant differences emerged when word length was examined separately and for low/high PP. Specifically, the None group performed worse than other groups on all high PP nonwords. On 3- and 4-syllable low PP nonwords, the Minimal group performed similarly to the Advanced and Full.
groups, suggesting that SP did not facilitate NWR in more proficient groups. In conclusion, the results from this study indicate that if NWR tasks are to be used diagnostically (Gathercole, 2006), PP and SP may be important variables to consider during the assessment of NWR abilities in children who are not native speakers of a NWR task’s base language.

#304 11:15 am

**Neural Underpinnings of Speech Rate Effects on Auditory Sentence Comprehension**

Josee Poirier, Language and Communicative Disorders

In neurolinguistics and psycholinguistics, the role of (left hemisphere) Broca’s area has been hotly debated. Research has associated this region with the processing of complex sentences and automaticity of rapid syntactic reconstruction. Damage to the left anterior cortical regions has been shown to disrupt automatic parsing routines yielding slower-than-normal lexical access. Behaviorally, slowing down the input rate helped left-anterior (aphasic) patients recover a normal time-course of processing reflexes, also improving overall comprehension, whereas the opposite was observed in unimpaired controls (Love, Swinney, Walenski and Zurif, submitted). This study uses functional magnetic resonance imaging (fMRI) to investigate the neural bases of the effect of speech rate on auditory sentence processing. We manipulated syntactic complexity (active and object-relative constructions) and rate of speech input (normal: 5.4 syllables / second and slow: 2.7 syllables per second) in a blocked design. Participants in this study included unimpaired controls (n =8) and impaired left-hemisphere damage aphasic patients (LHD) (n =16). Due to space and time limitations, we will focus our report on effects involving Broca’s area and its right homologue. Preliminary analyses for unimpaired adults indicate that slowing down the input disengaged the left inferior frontal region for the simpler sentences and reduced its involvement for the more complex sentences. For the LHD participants, slowing the input resulted in the recruitment of right-hemisphere Broca’s area as well as the penumbra regions of the lesion in the left hemisphere. We also note a complexity-dependent modulation of right-hemisphere homologue/penumbra activation. Interestingly, we observe important individual differences in activation patterns, especially concerning the recruitment of the penumbra regions and of the right-hemisphere Broca’s region. We will discuss these differences in terms of extent of lesion. Implications for the role of (left-hemisphere) Broca’s region and surrounding tissue in language processing will also be discussed.

Session C-12
Oral Presentation: Evolutionary Biology
Saturday, March 1st, 2008, 10:15 am
Location: Quetzalcoatl A

#305 10:15 am

**The Role of Brachiation in the Evolution of Hominin Locomotion**

Erin Woodcock-Blankenship, Anthropology
Arion Mayes, Anthropology

The origin of bipedal locomotion is a key component to human evolution that continues to be widely debated. Some theories suggest that the form of arboreal locomotion, termed brachiation, is the precursor to bipedal locomotion. Modern specimens are often used as models for evolutionary studies. The only extant true brachiators are in the family Hyllobates (gibbons and siamangs). This study evaluates osteological measurements and pathology of four skeletal Hyllobates specimens from San Diego State University Biology Mammals Collection, along with 25 hours of behavioral sampling on four extant siamangs at San Diego Zoo. Using these two forms of research, this study will attempt to determine a relationship between brachiation and bipedal locomotion. The osteological data suggest that Hyllobates are morphologically adapted to arboreal brachiation. However, behavioral observation suggests that captive siamang individuals spend more of their time exhibiting terrestrial bipedalism than any form of arboreal locomotion. Furthermore, the four skeletal specimens, all being zoo subjects, showed no pathological changes that suggest negative impacts due to locomotor change. These results do not disclude brachiation as a possible pre-cursor to bipedal locomotion in hominins. Further studies of this kind must be made before a definitive conclusion can be reached.

#306 10:30 am

**The Parallel Evolution of Nectar Robbing in Flowerpiercers (Diglossa and Diglossopis)**

William Mauck III, Biology
Kevin Burns, Biology

Flowerpiercers are a group of tanagers from the neotropics and are known to use their unique bill shape to thieve nectar from flowers. The hook on the upper bill is used to hold the base of a flower, while the point of the lower bill is used to cut a hole in the flower to rob nectar without pollinating. A study by Schondube and Martinez del Rio (2003), found that variations in hook size are correlated with consumption rates of food types. Such that a large hook is more efficient at piercing flowers while a small hook
is more efficient at eating fruit. The previous study then used a phylogeny based on a few species to conclude that hook size evolved progressively from a small to a large hook. However, all species were not assigned a hook sizes and the criteria for defining hook size was not described. Thus, I measured 757 specimens from all 18 species of flowerpiercer and found that hook size increases as bill size decreases. To investigate how hook size has evolved relative to bill size, I reconstructed the first complete phylogeny for all flowerpiercers by sequencing two genes (2184 base pairs) of mitochondrial DNA. Using the phylogeny I mapped the relative hook size of all flowerpiercers and identified two independent lineages that evolved a large relative hook used for robbing nectar and two lineages with a small relative hook for eating fruit. This variation in feeding morphology could allow for as many as 10 species to coexist in the Andes without competitive exclusion. When comparing distributions, a large difference in relative hook size and variations in natural history characteristics (microhabitat and behavior) explains 92% of the overlapping ranges. Thus, niche partitioning has allowed for the parallel evolution of nectar robbing flowerpiercers with overlapping distributions.

#307 10:45 am

Molecular Phylogenetics of the Garden Slender Salamander Batrachoseps Major in Baja California

Anny Peralta Garcia, Biology
Tod W. Reeder, Biology

The garden slender salamander (Batrachoseps major) ranges from Los Angeles County in the United States to El Rosario in Baja California, México. Within Batrachoseps, species lack morphological differences and are considered cryptic. Molecular markers have discovered new lineages and Batrachoseps is now thought to be one of the most diverse salamander genera in North America. This study examines the phylogenetic position of populations of Batrachoseps in Baja California. A phylogenetic analysis of ~715 bp of the mitochondrial cytochrome b gene was used to reconstruct the relationships of 111 individual sequences, representing 24 Baja California and 28 California localities. The phylogeny reveals that populations in Baja California are not monophyletic with at least one locality having an affinity to more northern B. major from San Diego County. The majority of samples form two groups, referred to as clade a and b. The first ranges from southern San Diego to populations north of Ensenada, and includes the disjunct Sierra San Pedro Mártir population. The second clade, b, groups populations from Ensenada and localities in the immediate vicinity. Outside of these two clades, a third clade groups two widely disjunct populations, the subspecies B. major aridus from Riverside County and a undescribed population from the San Quintín region in Baja California. The biogeographical patterns are likely the result of range expansion and contractions, probably resulting from climatic changes linked to glaciations and deglaciations during the Pliocene and Pleistocene. A pattern resulting from restricted gene flow with isolation by distance was seen, which is also reflected by the significant differences in Fst values and genetic distances between groups, especially in the case of the population from San Quintín.

#308 11:00 am

Systematics of Pogogyne (Lamiaceae) Using Molecular Sequence Data

Michael Silveira, Biology
Mike Simpson, Biology

The genus Pogogyne (Lamiaceae) is a small group of plants in the Mint family that almost entirely exists in California vernal pools. These seven currently described species mostly grow in habitat that is continuously destroyed and little is known about their phylogenetic relationships. Of particular interest are two species within the genus that are federally endangered and are located within San Diego County. Molecular sequence data from chloroplast and nuclear genomes was collected from all described species and possible outgroups. DNA was analyzed using both Parsimony and Bayesian phylogeny reconstruction methods. These reconstructions will help delineate species boundaries and will add to the data used in conservation efforts for both these plants and their fragile habitat.

Session C-13
Oral Presentation: Health Behaviors II
Saturday, March 1st, 2008, 10:15 am
Location: Quetzalcoatl B

#309 10:45 am

Nurse Managers’ Leadership Styles and Nurse Job Satisfaction

Kim Reina Failla, Nursing
Jaynelle Stichler, Nursing

Objective: To determine the effect of nurse managers’ (NMs) leadership style (LS) on nurse job satisfaction (JS). The study aims were to identify if there was a difference and association with perceptions of LS and if there was a relationship between transformational leadership (TL) and JS. Background: JS is a critical element in addressing the nursing shortage. Literature supports the relationship between LS and JS. Methods: A correlational comparative design was used to survey NMs and nurses. The Multifactor Leadership Questionnaire (MLQ) was used to measure LS and the Index of Work Satisfaction (IWS) was used to measure JS. Results: ANOVA was used to test differences
between the manager’s perception of LS with staff’s perception of that LS. Statistically significant (SS) differences were shown on two subscales of the TL component of the MLQ between nurses and NMs. No SS findings were found between overall LS on the MLQ between the NM’s scores and the staff scores. Pearson’s correlation was used to evaluate associations and SS correlations were found between NMs and staff perceptions of the manager’s LS on one component of the MLQ: Leadership Outcomes \( (r = .292) \). SS correlations were found between the NM’s LS and nurse JS for: TL and 3 subscales of the IWS \( (r = .246-.380) \); Transactional Leadership and one subscale of the IWS \( (r = .248) \); Laissez-Faire Leadership and 2 subscales of the IWS \( (r = -.358 to -.375) \); and Leadership Outcomes and 3 subscales of the IWS \( (r = .277-.384) \). A SS correlation was found between NM’s TL and JS \( (r = .348) \). Conclusion: These findings suggest that higher levels of TL mean higher levels of JS and that there is an opportunity for nursing leaders to develop and improve their TL skills in order to lead effective and satisfied teams.

**#310 11:00 am**

**Predictor Variables of Organizational Commitment in Turbulent Environments**

John Boucher, Nursing
Jaynelle Stichler, Nursing

There is little doubt that environmental turbulence is a fact of life in modern healthcare. Now more than ever, the ability to recruit and retain staff likely to thrive in these environments is a vital skill for nurse recruiters and patient care managers. The purpose of this study was to determine if specific personality characteristics, i.e., hardiness, ambiguity tolerance and self-esteem, correlate with an individual’s ability to achieve caring efficacy and, ultimately, to the three facets of organizational commitment, i.e., affective (AC), Normative (NC) and Continuance Commitment (CC). A descriptive, cross-sectional, correlational design was used to test the hypotheses in this study. A purposive, convenience sample of bedside, acute care nurses \( (n=88) \) on 5 medical surgical inpatient units were surveyed. Data were tested using parametric statistics including the Pearson Product-Moment coefficient \( r \) to test the strength of relationships among the variables of interest. A correlational matrix was constructed representing correlations among variables. In the post hoc analysis an F-statistic was computed using Multiple Regression methodology and the amount of variance explained by all preceding variables was determined with the R² statistic. Significant relationships were shown between the independent variables hardiness \( r = .49, p < .05 \), ambiguity tolerance \( r = .45, p < .05 \) and self esteem \( r = -.49, p < .05 \) with the intermediary variable, caring efficacy. Caring efficacy as an independent variable demonstrated a significant relationship with AC \( r = .40, p < .05 \) and NC \( r = -.24, p = .03 \). The correlation coefficient suggested a strong positive relationship between hardiness and AC \( r = .52, p < .05 \), and a moderately positive relationship with NC \( r = .28, p = .01 \). The correlation coefficient suggested a weak positive relationship between ambiguity tolerance and AC \( r = .21, p < .047 \). These findings suggested that there is an association between hardiness, ambiguity tolerance and self esteem with attainment of caring efficacy in acute care, bedside registered nurses. Strong, significant associations among hardiness, caring efficacy and the affective component of organizational commitment were also found. Further research is recommended to determine the value of these variables in predicting registered nurses’ ability to successfully adapt to the turbulent acute care work setting, and to establish affective commitment in the healthcare organization.

**#311 11:15 am**

**A Spatial Analysis of Self-reported Malaria Prevalence in Accra, Ghana: The Role of Urban Agriculture**

Justin Stoler, Epidemiology
John Weeks, Geography

Sub-Saharan Africa is experiencing unprecedented urbanization, and many local governments remain unable to meet basic infrastructure needs for these booming populations. This leads to the tacit or explicit encouragement of agriculture within urban areas since it has been shown to reduce poverty and increase food security. However, urban agriculture may inadvertently harbor malaria’s mosquito vector through irrigation and increased water storage. Thus, urban malaria, which is a growing problem, may be linked to urban agriculture practices. The connection between urban agriculture and malaria prevalence has recently been investigated in several studies, but a clear relationship remains elusive. This study utilizes spatial analysis techniques to examine the relationships between self-reported malaria statistics for 3180 women surveyed in Accra, Ghana in 2003, proximity to sites of urban agriculture, and household characteristics. Additional survey information qualifying whether or not a woman’s malaria diagnosis was made by a health professional or paired with anti-malarial drug therapy was synthesized into a Self Report Index (SRI). This index was linked to a stable indicator of self-reported overall health and is a measure of propensity for truly having had malaria given one’s self-report. SRI scores were negatively associated with distance from urban agriculture up to 1 kilometer, the association disappearing beyond this critical distance. Spatial statistics confirm some clusters of high SRI scores within 1 kilometer of urban agriculture and clusters of low SRI scores beyond this region. The 1 kilometer distance threshold appears to be an important parameter for identifying malaria risk in communities near urban agriculture; this association has important implications for malaria surveillance and control. Given populations of similar socioeconomic status and education, communities
within 1 kilometer of urban agriculture might be considered a new priority population for malaria-related care.

#312 11:30 am

**Surveillance, Diagnosis, and Treatment of Schistosomiasis and Strongyloidiasis in Sudanese Refugees, San Diego County**

Jamie Wolf, Epidemiology
Stephanie Brodine, Graduate School of Public Health

Objectives: In 2006, California received the highest number of refugees in the US, comprising 12.5% of all refugees resettled that year and San Diego County received 4,940 new refugee arrivals over the past 4 years. Sub-Saharan Africa is also increasing as the location of origin, posing new public health and clinical challenges. Recent data in Sudanese and Somali refugees demonstrated nearly 70% are infected with either schistosomiasis, strongyloidiasis or both. Both parasites cause substantial morbidity and mortality if not eradicated, which led to CDC guidelines for empiric treatment on arrival to the U.S. Despite the availability of effective drugs and national guidelines, the majority of cities have not implemented treatment programs. Additionally, there is a need for more data on the prevalence rates of these parasitic infections in children, and the frequency of Loa loa co-infection in Sudanese, as this precludes use of ivermectin for strongyloidiasis. This study is a seroprevalence of schistosomiasis, strongyloidiasis and Loa loa in a community based sample of Sudanese resettled refugees in San Diego County. Methods: Sudanese refugees, ages 4 and older were recruited via community organizations for a questionnaire, including geographic exposures and presence of chronic abdominal pain, physical exam, CBC, serologic parasitic screening, and treatment. Results: Nearly half of the 178 Sudanese (85/170; 49%), were infected with either schistosomiasis (45/170; 26%), strongyloidiasis (56/173; 32%), or both (16/170; 9%), there were no Loa loa infections. Rates of infection were lower in children (22/61, 36%), however still significant. No predictors for infection were identified; however eosinophilia was associated with co-infection. Conclusions: High infection rates of schistosomiasis and strongyloidiasis in a diverse community based sample of Sudanese confirm the urgency for compliance with CDC guidelines on entry. Co-infection with Loa loa may be lower than estimated, allowing more effective therapy for strongyloidiasis.
Our thanks and appreciation to the following individuals, units and groups for their support of student involvement in research, scholarship and creative activities.

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San Diego State University is leading the way in research and for the second consecutive year is ranked the number one small research university in the nation. Throughout the month of March, SDSU celebrates the outstanding faculty, students and staff who are finding ways to change lives and improve the world.