7th Annual College of Science
Student Research Day
Friday, May 13, 2011
Duncan Hall, Ground Level  10 a.m. - 1 p.m.
A Showcase of Original Student Scientific Research

SJSU students working with College of Science faculty on original scientific research will present their results on a fascinating array of projects. All are welcome.

This event is wheelchair accessible. For other ADA accommodations, contact roy.okuda@sjsu.edu
San José State University
7th Annual College of Science Student Research Day

Program

1. Successful SJSU College of Science Student Researchers for 2010 and 2011.
   (COS Students who began graduate, medical or professional school in AY 2010/2011, and who will begin in these programs in AY 2011/2012)
   List compiled by Leslee Parr and Miri Van Hoven.

   Department of Biological Sciences

2. Effects of Different Analgesics on Angiogenesis in Transplanted Ovarian Tissue in Mice.
   Anna Le
   Faculty: Shelley Caragill

3. SR1 Bacteria: A Fresh Look.
   Adam Caldwell, Sumreet Ghotra, Amelia Lindsey, Stephanie Nystrom
   Faculty: Cleber C. Ouverney

4. An uncultivated Bacterium Model.
   Jorge Dinis, David Barton, Jamsheed Ghadiri, Samuel Smits
   Faculty: Cleber Ouverney

5. Floral Variability in Leptosiphon androsaceus Along a Moisture Gradient.
   Rachel Hussey
   Faculty: Susan Lambrecht

6. PI3K, Insulin Signaling, and Fetal Alcohol Syndrome: Possible Role For Oxidative Stress.
   Theresa Logan-Garbisch, William Hsu, Huda Rehman
   Faculty: Rachael L. French

7. The Role of EGF-R Signal Transduction in Mediating Developmental Ethanol Effects.
   David Do, Peter Luu, Luke Lajoie
   Faculty: Rachael L. French

8. The Effect of Flavonoids on Mitochondrial Activity and Cellular Metabolism.
   Duong Nguyen, Alex Ng
   Faculty: J. Brandon White
Shante O’Hanlon, Anabel Ortiz, Minh Pham, Mekela Raman
Faculty: Miri VanHoven

Kelli Benedetti, Aruna Varshney, Akshi Goyal, Dianicha Santana, Pooja Prasad, Joori Park
Faculty: Miri VanHoven

11. An Investigation Into the Affect of Neuronal Activity on Proper Neuronal Connectivity in C. elegans.
Ben Barsi-Rhyne*, Kristine Miller*, Emma Holdrich, Joori Park
Faculty: Miri VanHoven

William Wung, Johann Zaroli, Kelli Benedetti, Nathan Cook, Phil Knezevich, Joori Park
Faculty: Miri VanHoven

Bryan Barney
Faculty: Joshua Mackie, Leslee Parr

Cairbre Fanslow
Faculty: Joshua Mackie, Dr. Leslee Parr

15. Assessment of Genetic Endemism in Burrowing Crustaceans on the US Pacific Coast
Maria Bangal, Mira Brahmbhatt, Thinh Huynh, Danielle Perryman
Faculty: Drs. Joshua Mackie, and Leslee Parr
Collaborators: Daphne Gille, University of California, Davis

Daniel Gutierrez, Raymund Bueno
Faculty: Julio G. Soto

17. Multicolor Flow Cytometry Analysis of Peripheral Blood Lymphocytes in Pediatric Patients with Inflammatory Bowel Disease.
Nicole Tarlton, Caroline Green
Faculty: Tzvia Abramson
Collaborators: Nicole Lazarous, Lusijah Rott, Chulie Ulloa, Eugene C Butcher (Stanford University)

18. Differential and Temporal Immunomodulation of a4 Integrin Receptors on
Memory T cells by *Bordetella pertussis* and *Bordetella parapertussis* Infection in Mice.
Tuan Andrew Nguyen, Ryan Ferguson, Dipti Ravindra, Uma Nagarajan, Anna Shull, David Chuang, Brian Kwong, Sana Waheed
Faculty: Tzvia Abramson
Collaborators: Linh Nyguen, C Butcher (Stanford University)

Department of Chemistry

19. **Overexpression of BIV and HIV TAR RNA and Tat Peptides.**
Jonathan Grist, Heather Wright, Bo Hwang, Tan Tran and Josh Sun
Faculty: Elaine D. Collins

20. **Overexpression and Purification of the Human Vitamin D Receptor and Two Variants.**
Mallory Kato, Aileen Espinoza, Amanda Rodriguez
Faculty: Elaine D. Collins

21. **Understanding the Chiral Properties of Calcium-Binding Sites of Calmodulin Using Europium(III).**
Farah Memon, Truman D. Jefferson
Faculty: Gilles Muller

22. **Photophysical and Chiroptical Properties of Chiral Lanthanide(III) Complexes.**
Bao Le
Faculty: Gilles Muller

23. **Detailed Characterization of a Tridentate Ligand for Circularly Polarized Luminescent Ln(III)-Containing Probes.**
Andrew J. Ingram, Eliseo E. Quiroz, Alex Dunlap
Faculty: Gilles Muller

24. **Approaches to the Synthesis of Optically Active 4-Amino-2,6-pyridinedicarboxylate Ligands by Catalytic Coupling Reactions.**
Jia E. Lu
Faculty: Daniel A. Straus
Collaborators: Prof. Gilles Muller, SJSU; Prof. Stephen Buchwald, MIT

25. **Synthesis of Karrikin Analogues: Butenolide Derivatives That Play an Important Role in Post-Fire Seed Germination.**
Tory Johnson
Faculty: Daniel Straus
Collaborators: Winslow Briggs, Tong-Seung Tseng, Carnegie Institution, Department of Plant Biology
Kieu Ha, Nathan Feick, Jeffrey Berry, Khaled Khaled, Ricky Le, Linda Leong, Saul Pérez Montañó
Faculty: Annalise Van Wyngarden
Collaborators: Laura T. Iraci, NASA Ames Research Center, Moffett Field, CA

27. Speciation of Glyoxal and Methylglyoxal Hydrates and Polymers in Aqueous Solution.
Jeffrey Berry, Khaled Khaled
Faculty: Annalise Van Wyngarden
Collaborators: Laura T. Iraci, NASA Ames Research Center, Moffett Field, CA

Yamah Amiri
Faculty: Daryl K. Eggers

29. Bulk Water Effects on Nucleoside Solubility as Probed with Salt Solutions.
Asha Sadhan, Elisa Aguilar
Faculty: Daryl K. Eggers

Brian Castellano
Faculty: Daryl K. Eggers

31. Alginate Gel Encapsulation of Bromoperoxidase.
John Kim, Bo Hwang, Nikhita Tulsi, Daniel Pacheco
Faculty: Roy Okuda

32. Light Initiated Hydroxylation of Substrate C-H bonds using Hybrid P450 Enzymes.
Ngoc Huynh, Ngoc-Han Tran, Thuba Bui, Angelina Nguyen, Haiyen Nguyen, Jeremiah Heredia, Garrett Chavez
Faculty: Lionel Cheruzel

33. Synthesis and Characterization of Microspherical Imprinted Polymers as P450 Enzyme Mimic.
Austin Roberts, Alvin Thai
Faculty: Lionel Cheruzel

34. Selectively Cytotoxic Lipid-linked Inositol Glycans: Effect of Chain Length on Activity.
Meenakshi Goel
Faculty: Marc d’Alarcao
35. Fluid Dynamics Modeling of Segmented Droplets in Microfluidic Chips.  
Katrina J. Donovan  
Faculty: Bradley M. Stone  
Collaborators: (Andrew J. deMello, Imperial College London, London, UK) (Xize Niu, Imperial College London, London, UK) (Xavier Casadevall i Solvas, Imperial College London, London, UK) (Shelli Gulati, Imperial College London, London, UK)

36. Novel Application of Statistical Predictors: First Stage Calculation of Solvent Accessible Protein Residues.  
Reecha Nepal, Daniel Rose, Shabnam Gholizadeh, Robert Lau, Radhika Mishra, Kimberly Uweh  
Faculty: Brooke Lustig

Department of Computer Science

37. Efficient Attacks on Homophonic Substitution Ciphers.  
Amrapali Dhavare  
Faculty: Mark Stamp

38. Robust Watermarking Based on Metamorphic Software.  
Mausami Mungale  
Faculty: Mark Stamp

Daniel Li  
Faculty: Mark Stamp

Raymond Wong  
Faculty: Teng Moh and Melody Moh

41. Improving Molecular Fingerprint Similarity via Enhanced Folding.  
Victor Chen  
Faculty: Teng Moh

Department of Geology

42. The Fossil Record and Evolutionary History of Conus californicus, a Predatory Marine Snail.  
Mireya Berrios  
Faculty: Jonathan R. Hendricks
Department of Mathematics

   Anh Nguyen, Neeti Mittal
   Faculty: Richard Pfeifer

44. Lower Bounds for the Ropelength of Reduced Conformations.
   Robert McGuigan
   Faculty: Tim Hsu
   Advisor at CSUSB REU: Dr. Rollie Trapp.

Department of Meteorology and Climate Studies

45. Calculating the carbon emissions associated with San Jose’s Green Vision.
   Lina Prada
   Faculty: Eugene Cordero

46. Online Versus Face-to-Face Courses: An Analysis of Carbon Emissions.
   Matthew Little
   Faculty: Eugene Cordero

47. Assessment of Water Storage in the Mississippi River Basin as Derived From IPCC Models in Comparison to GRACE Observations.
   Katherine Pitts
   Faculty: Alison F. C. Bridger

48. Wind Power Forecasting in the Coast Range of Central California.
   Kevin T. Clifford
   Advisor: Craig Clements

   Daisuke Seto
   Faculty: Craig B. Clements

50. CSU-MAPS: California State University-Mobile Atmospheric Profiling System.
   Allison Charland
   Faculty: Craig B Clements
   Collaborators: Andrew Oliphant, SFSU
Department of Physics and Astronomy

Carlos Salazar-Lazaro, Rebecca Linck
Faculty: Ken Wharton (Physics)

52. Emission from Oxygen-bearing Species in Molecular Clouds: O and O₂ in Shocks and PDRs.
Mike Turner
Faculty: Michael Kaufman
Collaborators: Paul Goldsmith and the Herschel HOP Team

Paul Houck
Faculty: Michael Kaufman

54. Infrared Spectroscopy of Simple Organic Ices for Comparison to Spectra of Interstellar and Solar System Objects.
Matthew Berry
Faculty: Monika Kress
Collaborators: Rachel Mastrapa, SETI Institute & NASA Ames Research Center, Cynthia Phillips, SETI Institute

55. Absorption Features of Molecular Clouds.
Tin Tran
Faculty: Monika Kress
Collaborators: Jean Chiar, SETI Institute & NASA Ames Research Center, Cynthia Phillips, SETI Institute

56. Novel Processing Methods and Signal Detections in SETI
Alfredo Astorga
Faculty: Monika Kress
Collaborators: Gerry R Harp, SETI Institute, R Ackerman SETI Institute

57. Earthquake Precursors, Cuprate Superloop Currents: MaxEnt Resonance studies.
Katie Tyson, Steven Tyndall, Rudy Schwartz and Matthew Fong
Faculty: Carel Boekema
Collaborators: F Freund, NASA Ames; DW Cooke LANL.
About the San José State University College of Science

The College of Science (COS) transforms its majors into qualified science professionals for a global and regional Silicon Valley work force, and prepares them for advanced (graduate) training and life-long learning. Core science education is provided for engineers, health care professionals, K-12 teachers, and other technical fields, as well as basic mathematics and science skills to students in on-science majors. Our students are instilled with a general awareness of science and technology, necessary to be an informed citizen in our highly technical, culturally diverse society.

The mission of the College of Science is to:

Prepare students for rewarding careers in biological sciences, chemistry, computer science, geology, mathematics, meteorology, physics and astronomy.

Provide lower division core biology, chemistry, mathematics, meteorology, geology and physics courses for majors in technical disciplines (such as engineering).

Enable all undergraduate students to achieve a well-rounded education by attaining the quantitative, critical thinking, and scientific skills necessary for lifelong learning and informed decision-making on scientific issues.

Prepare future K-12 teachers with the appropriate math and science content and teaching practices required for teaching math and science in California's diverse classrooms; and provide professional development opportunities for these teachers.

Foster high levels of student learning and faculty development by encouraging and supporting individualized undergraduate and graduate inquiry-based research and scholarship.

For more information, please visit the College of Science website: http://www.sjsu.edu/science/

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Last but NOT least:

Thanks and congratulations to all the hard working undergraduate and graduate students, and their faculty advisors for their hard work and for sharing it with us today!