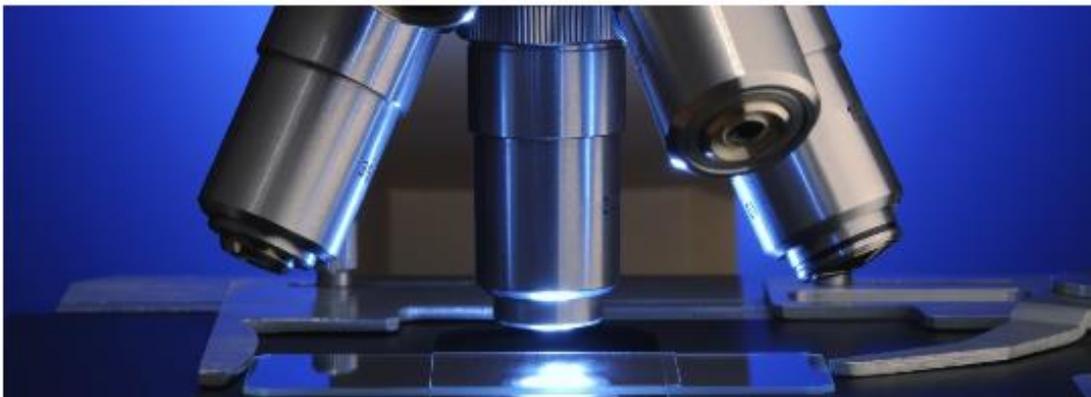


**7th Annual
College of Science
Student Research Day**

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.

is 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 Cargill
- 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

9. A Forward Genetic Screen to Find New Genes That Mediate Synaptic Partner Choice in *C. elegans*.

Shante O'Hanlon, Anabel Ortiz, Minh Pham, Mekela Raman

Faculty: Miri VanHoven

10. The Investigation of the Unc-6/netrin and Unc-40/dcc-mediated Synaptic Partner Choice Pathway in *C. elegans*.

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-Rhyme*, Kristine Miller*, Emma Holdrich, Joori Park

Faculty: Miri VanHoven

12. Understanding the Molecular Mechanisms That Mediate Axon Outgrowth Termination in *C. elegans*.

William Wung, Johann Zaroli, Kelli Benedetti, Nathan Cook, Phil Knezevich, Joori Park

Faculty: Miri VanHoven

13. Genetic Characterization of Dungeness Crab (*Cancer magister*) Populations Along the Pacific Coast Using mtDNA and Microsatellites.

Bryan Barney

Faculty: Joshua Mackie, Leslee Parr

14. Genetic Sweepstakes of Dungeness Crab, *Cancer magister*: Considerations of Larval Recruitment.

Cairbre Fanslow

Faculty: Joshua Mackie, Dr. Leslee Parr

15. Assessment of Genetic Endemism in Burrowing Crustaceans on the US Pacific Coast

Maria Bangal, Mira Brahmhatt, Thinh Huynh, Danielle Perryman

Faculty: Drs. Joshua Mackie, and Leslee Parr

Collaborators: Daphne Gille, University of California, Davis

16. Recombinant Mojastin Disintegrins Inhibit Cell Proliferation of SK-Mel-29 Cells.

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 $\alpha 4$ 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

26. Formation of Organic Surface Films on Aerosols in the Upper Troposphere and Lower Stratosphere (UTLS).

Kieu Ha, Nathan Feick, Jeffrey Berry, Khaled Khaled, Ricky Le, Linda Leong, Saul Pérez Montaña

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

28. Modified Silica Glass Effects on Protein Adsorption and Protein Structure.

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

30. Effects of Trimethylamine N-oxide on the Solubility of Diketopiperazine.

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

39. TwitterBot: A Social Media Botnet.

Daniel Li

Faculty: Mark Stamp

40. BitTorrent Traffic Detection with Deep Packet inspection and Deep Flow inspection.

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

43. Investigation of Isogonic Centers of a Triangle in Plane, Hyperbolic and Spherical Geometry.

Anh Nguyen, Neeti Mittal

Faculty: Richard Pfiefer

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

49. Fire Winds: New Observations From Field Experiments.

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

51. A Classical Toy Model of a Quantum Spin State.

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

53. New Calculations of Water Emission from Molecular Clouds.

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/>

ACKNOWLEDGEMENTS

Many people contributed to the success of this event. Special thanks to Dr. Michael Parrish (Dean, COS), Stan Vaughn (Facilities Manager, COS), Marco Parent, Mike Stephens and Lee Veliz for providing essential infrastructure and support. Special thanks to Steve Boring for printing the majority of the posters and to Judith Moore for printing of this program. Marilyn Dion of the SJSU Research Foundation prepared the flyer and cover of this program.

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!