SJSU College of Science
Fourth Annual Student Research Day

Many SJSU students work with College of Science faculty on original scientific research projects. The Student Research Day is a public display of some of the wide variety of research projects from all Departments in the College. The student researchers and faculty will be present to answer questions.

Friday, May 2, 2008

Duncan Hall (ground level)
10:00am to 1pm

Sponsored by
SJSU College of Science
www.science.sjsu.edu
   Jayanthi Lakkyreddy, Neelima Mehendale
   Faculty: Ruth Kibler and Tzvia Abramson

2. Production of a Human Monoclonal Antibody Against Gut Homing Integrin Receptor a4b7 as a Tool to Identify Plasmablast Levels in Intestinal Diseases.
   Asima Khan, Naama Shani,
   Faculty Advisor: Tzvia Abramson

   Jessie Bushell
   Faculty Advisor: Leslee A. Parr

   Michael Doan, Veronica Chaidez, Humberto Roca, Cindy Bick
   Faculty Advisor: Leslee A. Parr
   Collaborators, affiliation Theodore H. Dewitt², Anthony D’Andrea³, Brett Dumbauld⁴
   ²U.S. Environmental Protection Agency; ³Oregon State University; ⁴USDA-Agricultural Research Service;

5. Diversity of the Microbial Population Associated With the Wall of Estuarine Mud Shrimp Burrows.
   Maria Alvarellos
   Faculty Advisor: Sabine Rech

6. Diversity of Methanogenic Archaea and Sulfate Reducing Bacteria in the Sediments of a Constructed Wetland in Monterey County, CA.
   Paula B. Matheus-Carnevali
   Faculty Advisor: Sabine Rech

   Rawni Lunsford, Kimberley S. Seok
   Faculty Advisor: Sabine Rech

8. Effects of Moisture and Heat on Germination of Two Species of *Ceanothus* (Rhamnaceae).
   Sean Ryan, Erik Baxter, Mike Fong
   Faculty Advisor: Susan Lambrecht

9. Determining if the ARE1 Sites in the Coding Sequence of *Hro-Twist* Play a Role in mRNA Stabilization in *Helobdella robusta* Embryos.
   Ashley N. Nelson, Branden Fung
   Faculty Advisor: Julio G. Soto

10. Twisting Through the Tree of Life: Divergence in Function of The *Twist* Gene Throughout Evolution.
    Lidia Tekie
    Faculty Advisor: Julio G. Soto

11. Ubiquitination of *Mastermind* and Its Role in Transcriptional Activation.
    Nancy Fong
DEPARTMENT OF BIOLOGICAL SCIENCES (cont.)

12. Uncultivated Environmental Prokaryotic Model to Study Human Disease-Associated Bacterium.
K. R. Boddugari, D. E. Barton, D. S. Surendar, A. Olencherry
Faculty Advisor: Cleber Ouverney

DEPARTMENT OF CHEMISTRY

Jessica L. Killian, Darrell L. Niemann, Nathaniel B. Zuckerman, Jeremy M. Silan, Bryan P. Ribaya
Faculty Advisor: Bradley M. Stone
Collaborator: Cattien V. Nguyen (NASA-Ames)

14. Laboratory Measurements of Supersaturation Needed to Nucleate Ice on Martian Dust Analogs in a Simulated Martian Atmosphere.
Bruce D. Phebus
Faculty Advisor: Bradley M. Stone
Collaborators: Laura T. Iraci, Anthony Colaprete (NASA-Ames)

15. Electrochemically Degradable Polymers.
Vivian J. Tarkul (SJSU), Simina Grigoriu (Tufts), and Mina Fung (Tufts).
Faculty Advisor: Marc d’Alarcao

16. Measuring Diffusion Coefficients in a Mixture of Polymers: Molecular Weight Distribution Determination from PGSE NMR Data.
Pascal Mangi
Faculty Advisor: John W. Logan

17. Effects of Selected Hofmeister Salt Solutions on Nucleoside Solubility.
Aaron R.W. Gilbert, Elisa Aguilar
Faculty Advisor: Daryl K. Eggers

Annie K. Bui
Faculty Advisor: Daryl K. Eggers

19. Cloning the cDNA for the Vitamin D Receptor in an Expression Vector.
Thua Hua, Christina Cheung, Tuan Le
Faculty Advisor: Elaine D. Collins

Duy Pham, Coleon Bang
Faculty Advisor: Elaine D. Collins

Jamie Lunkley, Christine Pham
Faculty Advisor: Gilles Muller
Steven D. Bonsall, Mona Houcheime
Faculty Advisors: Gilles Muller, Daniel A. Straus

DEPARTMENT OF CHEMISTRY (cont.)

23. Modeling Amino Acid-Ligand Interactions for Chiral Clusters With Metal Centers.
Hoay-Fen Tan
Faculty Advisor: Patrick E. Fleming

Lap Y. Leung, Zin S. Myint
Faculty Advisor: Patrick E. Fleming

An Nguyen
Faculty Advisor: Brooke Lustig and Patrick E. Fleming

26. Protein Sequence Homology Parameters Applied to the Prediction of Solvent Accessible Residues
Sylvia Do, Hema Lakkaraju, Shalini Potluri, Katie Pham (CSU Fullerton)
Faculty Advisor: Brooke Lustig
Collaborator: Katherine Kantardjieff (CSU Fullerton)

Huan Nguyen, John Kim
Faculty Advisor: Roy K. Okuda

28. Donor substituted verdazyls as the basis for molecular switches.
Dallas A. Chambers, Victoria K. Chemistruck, Ben Haller
Faculty Advisor: David J.R. Brook

29. Optimizing Layer Thickness and Surface Treatment in Porous Silicon Vapor Sensors.
YuChun Lu
Faculty Advisor: Roger Terrill

30. Electrostatically Limited Assembly of Acid Terminated Thiols.
Arthur Cheng
Faculty Advisor: Roger Terrill

Hsiao-Chu Lin
Faculty Advisor: Roger Terrill

DEPARTMENT OF COMPUTER SCIENCE

32. Flash Worm Detection.
Ervi Bongso, Ashira Khera, Falguni Negandhi, Soid Quintero
33. **JavaFX as a DSL in Scala / Groovy.**
   Sadiya Hameed
   Faculty Advisor: Dr. Cay Horstmann

34. **Improving the Quality of Clustering of Web Search Results using Heuristics.**
   Ramprakash Lingampalli
   Faculty Advisor: Teng Moh

**DEPARTMENT OF GEOLOGY**

35. **Geology of the Santa Clara Formation at Lexington Reservoir: Preliminary Data for Stratigraphy, Petrology, and Faulting.**
   Susan Meyer, Kristi Black, Morgan Mendoza
   Faculty Advisor: David W. Andersen

36. **Brittle Structures in the Ross Lake National Recreation Area, Northern Cascades, Washington.**
   Pamela Jamie Clay
   Faculty Advisor: Robert B. Miller

37. **Tectonic Implications of Eocene Teanaway Dike Swarm in the Eastern Swauk Basin, Central Washington.**
   Morgan K. Mendoza
   Faculty Advisor: Robert B. Miller

**DEPARTMENT OF METEOROLOGY**

38. **Integration of MGS Observations of the 2001 Global Dust Storm on Mars: Implications for Atmospheric Modeling.**
   John Noble
   Faculty Advisor: Alison Bridger

39. **IPCC Climate Change Scenarios for California Winters: The Impact of Model Sensitivity Parameters.**
   Emerson Lajoie
   Faculty Advisors: Alison Bridger, Eugene Cordero

**MOSS LANDING MARINE LABORATORIES**

40. **Recruitment Strategies of the Ephemeral, Opportunistic Macroalga *Ulva* (Linnaeus) in Central California.**
   Rosemary Romero
   Faculty Advisor: Michael H. Graham

41. **Upper Limit of Nitrate Uptake Rates in *Porphyra perforata* (Rhodophyta).**
   Samuel Rivera
   Faculty Advisor: Michael H. Graham
DEPARTMENT OF PHYSICS

42. Integral Field Unit Spectral Imaging of H$_2$ Bullets in the Orion Molecular Outflow.
Daniel Olson
Faculty Advisor: Michael J. Kaufman
Collaborators: Chris J. Davis (United Kingdom Infrared Telescope), Sean Colgan & Ed Erickson (NASA Ames)

About the San José State University College of Science

The mission of the College of Science is to:

* Prepare students for rewarding careers in biological sciences, chemistry, computer science, geology, mathematics, meteorology, and physics.
* 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, as well as providing 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.

www.science.sjsu.edu

ACKNOWLEDGEMENTS

Many people contributed to the success of this event. Special thanks to Dr. Michael Parrish (Dean, COS), Stan Vaughn (Facilities Manager, COS) and the College Technical Staff for providing essential infrastructure and support. Cher Jones and Judith Moore and student assistants prepared the name tags and this booklet. Kristina Dragovic designed the cover and SRD poster.

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!