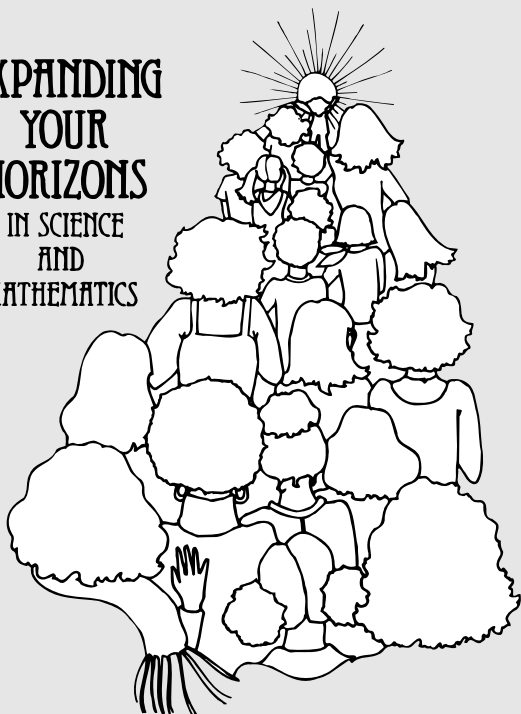


SAN JOSÉ STATE UNIVERSITY
EYH 2003
25TH ANNUAL CONFERENCE

**EXPANDING
YOUR
HORIZONS**
IN SCIENCE
AND
MATHEMATICS



Saturday, March 15, 2003
www.expandingyourhorizons.org

**For 6th to 9th grade young women
and interested adults, presented by
SAN JOSÉ STATE UNIVERSITY
and the MATH/SCIENCE NETWORK**

EXPANDING YOUR HORIZONS™

Saturday, March 15, 2003
San José State University

Conference Schedule

The conference begins at 9:15 am Saturday, March 15. Please pick up your conference information packet (containing your workshop assignment) between 8:15 am and 9:15 am on the day of the conference at Morris Dailey Auditorium in Tower Hall, San José State University. *Groups should arrive before 8:30 am.*

- 8:15 Registration begins in Morris Dailey Auditorium, Tower Hall
- 9:15 Welcome: Dr Jane Day
Professor
Department of Mathematics
San José State University
- 9:20 The Brainiacs
Lawrence Hall of Science
- 10:10 Snack
- 10:25-11:30 Morning Workshop I
- 11:45-12:50 Morning Workshop II
- 12:50 Lunch
- 1:40-2:45 Afternoon Workshop
- 3:00 Closing Remarks, Door Prizes, Conference Evaluation
- 3:30 End of Conference

Participants are expected to remain on campus and attend all scheduled activities.

CONFERENCE SPONSORS

Math/Science Network

Adaptec
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Applied Materials
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Synopsis
Toyota Motor Sales

San Jose Conference

Adaptec Corporation
ALZA
American Assoc. of University Women:
Sunnyvale-Cupertino, San Jose, and
Los Gatos Branches
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Math/Science Network
Offices of Education: Monterey, San
Benito, Santa Clara, and Santa Cruz
Counties
Quantum Corporation
San Jose State University - College of
Engineering & College of Science
Seagate Technology, Inc.
Society of Women Engineers, Santa
Clara Valley Chapter
Women in Science and Engineering,
SJSU Chapter

EXPANDING YOUR HORIZONS™

**Saturday, March 15, 2003
San José State University**

STUDENT REGISTRATION FORM

*PRINT CLEARLY, INCLUDE A SELF-ADDRESSED STAMPED ENVELOPE
AND A CHECK TO COVER \$15 FOR EACH STUDENT. THIS INCLUDES LUNCH.*

NAME _____
Last First

MAILING ADDRESS _____

CITY _____ ZIP _____

PHONE _____ GRADE _____

SCHOOL &
SCHOOL DISTRICT _____

Check if you want a VEGAN lunch.

If you have other special needs, please enclose details so we can help you during the conference. As an example, you may want to request a signer or interpreter to enhance the experience of either a student and/or adult participant.

Please read the Student Responsibility section opposite. A photographer may take pictures of you or your child. These photos may appear on our web site or in publications. If you register yourself or your child, you have given us permission to use your/her photos.

No Yes I grant permission for my child to receive emergency medical care, while attending the EYH Conference at SJSU.

Parent/Guardian signature

STUDENT WORKSHOP CHOICES

Write the number of your first 10 choices. You will be assigned 3 workshops.

1st	2nd	3rd	4th	5th
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
6th	7th	8th	9th	10th
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

ADULT REGISTRATION FORM

*PRINT CLEARLY, INCLUDE A SELF-ADDRESSED STAMPED ENVELOPE
AND A CHECK TO COVER \$15 FOR EACH ADULT. THIS INCLUDES LUNCH.*

NAME _____
Last First

MAILING ADDRESS _____

CITY _____ ZIP _____

PHONE _____ PARENT TEACHER

You may silently observe student sessions your students/daughters are not currently attending. If you wish to attend any adult workshops, please circle your choices below (up to three).

A1 A2 A3 A4 A5

EXPANDING YOUR HORIZONS™

WHY SHOULD YOU COME?

- *Discover how interesting and fun math and science can be*
- *Learn about career opportunities for women in mathematics, engineering, and science*
- *Form personal contacts with women working in traditionally male occupations*
- *Meet other young women interested in science and math*

Who is invited?

- Young women in grades 6-9
- Interested adults

What will we do?

The conference begins with an opening welcome and presentation. The rest of the day is devoted to workshops. Each workshop is a small class or discussion led by women who have careers in math, science or engineering. Hands-on workshops provide an opportunity for you to experiment in a specific area such as computer science or medicine. Career workshops are small group discussions about women in scientific careers. You will attend three workshops. We will provide lunch.

Student Responsibility

If you attend this conference you must be mature enough to follow instructions and directions provided by signs and guides on campus. **Also, you must attend all the events scheduled for you, including lunch, and remain on the SJSU campus from 9 a.m. until the conference ends at 3:30 p.m.**

REGISTER EARLY!

Only 800 students can be accepted, and often the conference is full several weeks before the actual conference date. Also, popular workshops fill up quickly and early registration will help you get your top choices. If your choices are full, we will place you in other workshops. We think they are all terrific, and you may discover some great careers you had not considered before.

Registration fee

The fee of \$15.00 (which applies to both students and adults) includes lunch. Mail your form, a check (made out to EYH-SJSU), and a self-addressed, stamped envelope to:

EYH Coordinator
Department of Biological Sciences
San José State University
San Jose, CA 95192-0100

INFORMATION ABOUT GROUPS, FEE WAIVERS, CANCELLATIONS, ETC.

Groups: If you wish to bring a group of 10-40 students, call (408) 924-4917 between Jan 27 and Feb 7, 2003. Send the registration forms and checks for your students all together and indicate you have a reservation. These must be postmarked by Friday, Feb 14. We reserve the right to limit the size and number of groups.

To request fee waivers and cancellations: (408) 924-4917

Refunds: Fees will be refunded if you call (408) 924-4917 before 5:00 p.m. on March 13, 2003, and cancel; or if your application arrives after the conference is full.

All other information (such as whether conference is full): (408) 924-4917

ENVIRONMENTAL SCIENCE WORKSHOPS

1 ADVENTURES INTO THE INTERTIDAL ZONE

Come explore our coastline geology and what makes our tide pools special. Find out more about the tide pool critters and the marine mammals that share their home. *Dana Wright, biologist, Environmental Volunteers; Sandi Lucas, biologist, formerly with the Alaska Dept. of Fish and Game; Dr. Barbara Callison, professor, San Jose State University*

2 LITTLE BUGS AT WORK: SEWER SCIENCE

Microscopic bugs are at work every day in our water and wastewater. Come see them under a microscope. Run experiments to find out what the bugs are doing in there. *Rhea Williamson, professor, San Jose State University; Stephanie Hughes, pollution prevention manager, City of Palo Alto*

3 CLAWS, PAWS & CAMOUFLAGE: ANIMAL ADAPTATIONS

If you've ever wondered how animals survive extreme temperatures or hunt at night, then this workshop is for you! We'll investigate some of our local animals and some of the "tools of the trade" they use to survive. *Kristina Parkison; Erica Herron, naturalists, East Bay Regional Parks*

4 EVERYTHING YOU EVER WANTED TO KNOW ABOUT WASTEWATER...AND WERE AFRAID TO ASK!

Come and do some "hands-on" activities related to wastewater. Find out some information about the process of working at a treatment plant and in the industry, and discuss women in "male-oriented" fields. *Joanna DeSa, Analyst II, Environmental Services Dept., City of San Jose; Christine Jessup, biological sciences graduate student, Stanford University*

5 MAGIC OF WATER

Come see a magical water presentation that will keep you spellbound with a whiz-bang performance of the water cycle, non-point pollution, water quality, stream stewardship and watershed awareness. The "Water Wizard" will demonstrate the critical importance of this resource and show you how their behaviors affect the supply. Who knew water could be so much fun! *Kathy Machado, education outreach coordinator; Betty Martinez, education outreach assistant, Santa Clara Valley Water District*

PHYSICAL SCIENCE WORKSHOPS

6 LASERS, LENSES, AND LIGHT

Experiment with light and lasers, learn how a TV uses color, and learn how fiber optics is used to transmit your phone call. *Lisa Windover, project manager/engineer; Shalini Venkatesh, engineer; Annette Grot, project manager/engineer, Agilent Technologies*

7 THE SAN ANDREAS - IT'S NOT OUR ONLY FAULT

Discover the what, why, where, when and so what of Bay Area earthquakes. *Heidi Stauffer, environmental consultant, LFR Levin-Fricke; Heidi Steiner, U.S. Geological Survey*

8 SINK OR SWIM

Surf's up! Explore the properties of density and surface tension while setting up the "Sink or Swim Surf School". *Jennifer Vance; Jamie Elsil; Pin-Pin Wei, Stanford graduate students*

9 LIFE IN A VACUUM

Learn about silicon wafers and how a vacuum is used to make integrated circuits. Coat surfaces with metal films in our plasma chamber and learn how these are used to make such things as mirrors. Find out how water, steam and ice can exist at the same time when we perform experiments in a vacuum. *Senzi Li, senior process engineer, Novellus Systems, Inc.; Nancy Mar; Kathy Arnold, Northern California Chapter of the American Vacuum Society*

10 DO CELLS BREATHE?

Join in on some fun experiments with yeast. We'll find out what they like best: water, juice or soda.

Lisa Choy, clinical production director; Mei Tan, process development manager; Tana Montgomery, manufacturing operations manager, clinical production; Laura Lange, fermentation cell culture development associate, Berlex Biosciences

11 FOOD ON FIRE: MEASURING CALORIES

Build a calorimeter and use it to determine the number of calories stored in common foods.

Clare Lawson, senior systems engineering manager, Apple Computers.

12 POLYMER PLAYGROUND

You'll learn what polymers are, make an ooey-gooey polymer (Gak), and discover the secret of disposable diapers.

Ann Reisenauer, research scientist, Stanford University; Susan Bernhard, scientist, Baxter Healthcare

13 STRANGE LIQUIDS

Have you ever heard of a liquid you can cut with a pair of scissors? Come see for yourself and learn about these strange polymer liquids. Find out why a polymer liquid behaves so differently than water does.

Shirley Johnson, chemical engineer; Wendy Levine, biologist, Applied Biosystems

14 THE SCIENCE OF CHANGE

We will demonstrate how our universe is dynamic, with many of the physical changes we observe being driven by chemical changes. We will demonstrate a pH rainbow, make slime and make mini-rockets.

Liliana Quintanar; Marina S. Chow; Pin-Pin Wei, chemistry department, Stanford University

15 EXPLORING THE SOLAR SYSTEM

Make a model of our solar system and discover its huge scale. How have we been able to send a spacecraft to the Moon, seven planets, asteroids and comets? What did we learn when they got there? How was a single spacecraft able to visit four different planets without using a motor? Learn how scientists and engineers work together to learn about these other worlds.

Katie Berryhill, JPL solar system ambassador, NASA

16 SOMETHING FUNNY IN THE AIR

Come learn about the interesting properties of gasses and build an Alka-Seltzer powered rocket!

Jennifer Vance; Jamie Elsila; Pin-Pin Wei, Stanford graduate students

17 FUN WITH MAGICAL MEDICAL MATERIALS

You won't believe what a doctor is willing to put into your body! Dip metal into "smoke", wad it up and watch it return to its original shape by just breathing on it!

Michelle Bartning, process development engineer; Lucy Zhu, research & development engineer, Nitinol Devices and Components (Johnson & Johnson)

18 FASCINATING FUNGI

Explore the interesting world of fungi. Observe the beautiful forms under the microscope and learn about the good and bad fungi.

Zubeda Ziva Abraham, microbiology consultant, Microrite, Inc.

19 SLAM! BANG! CALIFORNIA IS BORN!

The formation of California sounds like a Friday night traffic report – crashing tectonic plates, colliding continents, jamming rocks, ripping trenches, and pileups. The San Francisco Bay and surrounding areas preserve traces of these violent encounters with evidence of volcanism, glaciation, faulting, folding and subduction. Get a glimpse of the adventures of the rocks of San Francisco as they continue on their northward journey from Los Angeles to Alaska.

Shailaja Kumar, SQA engineer, iPrint Technologies

20 CAN A CARDBOARD BOAT FLOAT? YOU DECIDE!

Split into teams, design and build a mini-cardboard boat. Test it and learn why it did or did not work.

Ceal Craig, project management and educational consultant, Druai Consulting

21 NIFTY CHEMISTRY

Come experiment with reactions! Explore color changes, explosions and edible chemistry.

Janell Neulinger; Jenny Keyani, chemistry graduate students, University of California, Berkeley

22 THE PRACTICAL SKY

Learn to use stars as a compass, a clock and a calendar.

Tinka Ross, planetarian, Morrison Planetarium at California Academy of Sciences and with the portable Star Lab

ENGINEERING WORKSHOPS

23 MATERIALS MADNESS

How do you make a flower shatter like glass? Ever met a metal with a memory? Why does aluminum foil bend while china plates break? Can we really turn copper pennies into gold? Come be a contestant on Materials Madness and discover how materials shape the world around you!

Materials science and engineering graduate students, Stanford University

24 ELECTRICITY IN THE WORLD AROUND YOU

We will discuss how electronics impacts industries such as entertainment, utilities, communications, etc. Demonstrations include hands-on experiments in transmitting and receiving voice over various media.

Maria Guerra, president, Guerra Technologies Inc.

25 A STICKY SITUATION

Why is it so hard to get ketchup out of a bottle? Liquids have a property called viscosity that causes them to stick to the sides of containers. Do some fun experiments to measure the viscosity of sticky liquids like oil, syrup, and water. Learn how engineers use liquids in mechanical and aerospace design.

Alissa M. Fitzgerald, mechanical engineer, Sensant Corp.

26 PET RESCUE

Help rescue a beloved pet trapped in a pipe! In this design-challenge activity, we'll explore how structure relates to function as we design devices to save Fido.

Melissa McAlexander, community programs learning specialist, The Tech Museum of Innovation

COMPUTER/MATHEMATICS WORKSHOPS

27 KALEIDOCYCLES AND SYMMETRY

Come explore rotational symmetry through a 3-dimensional art form.

Nedra Shunk, mathematics professor, Santa Clara University; Betty Weiss, mathematics professor, West Valley College

28 HOW UNUSUAL!?!

Have you ever experienced events that were so unlikely that it seemed they could not have been due to a coincidence alone? We will make some guesses, play some games and use mathematics to investigate the odds of strange events happening.

Helen Moore, mathematician, Stanford University and Associate Director of American Institute of Mathematics Research Conference Center

29 COMPUTERS: LOVE AT FIRST BYTE

Find out why so many people just can't live without a computer. Run some programs you can buy. Write and run your own program.

Adrienne Jardetzky, software development manager, Network Appliance

30 ANAMORPHIC ART

Make a cylindrical mirror to help you decode a distorted picture

Hope Jukl, mathematics instructor, Gavilan College

31 WEB WORK

Make your website rock and roll with JavaScript!

Alta Elstad, teacher, Evergreen School District; Mary Nguyen, software consultant.

32 DESIGN THE PERFECT PROM DRESS USING MATHEMATICS!

When you go to the store to buy a prom dress, you think about things such as color, length, fabric, neckline and price. We will show you how to help companies (dress manufacturers) design, market and sell products (dresses). We will build a computer market research study, analyze the data and use mathematical modeling to help a company design the perfect prom dress.

Maragaret Taub; Alisa B. Mosler; Gloria Lee; Lubna Chunawala; Inez Renner, consultants, Standard and Poor's

33 PROGRAMMING SIMPLE ANIMATION

Learn how to make a butterfly fly through simple programming on a PC. (Prior experience with Windows strongly recommended; no programming experience required.)

Marilyn Schneider Hollinger, director, Ease-of-Use Architecture, Oracle Corporation; Val Langmuir, network engineer, Triton Container

34 BEHIND THE INTERNET: ROUTERS

Have you ever wondered how the Internet works? Come to this workshop if you ever wondered how instant messages get sent to your friends, how web sites arrive at your computer or how downloading MP3s is done! See how routers and computers make all this, and much more, possible!

Darlene G. Wong; Wendy Peikes, software engineers, Cisco Systems

35 PROBABILITY BY SURPRISE

Explore paradoxes in probability with animations from the Web. What is randomness?

Susan Holmes, associate professor of statistics, Stanford University

BIOLOGICAL/MEDICAL WORKSHOPS

36 FROM SHERLOCK HOLMES TO CSI: CRIME SCIENCE IN THE REAL WORLD

Every time a crime occurs, clues are left behind. Science can then be used to discover who did it and how. Come meet some modern-day crime fighters and learn techniques to solve a mystery.

Cordelia Willis, criminalist, Santa Clara County Crime Lab

37 MEDICAL DETECTIVES

Learn how scientists use epidemiology and solve medical mysteries like disease outbreaks and how they spread. We'll follow clues and solve the mysteries – prizes at the end!

Candra Abraham; Alicia Moody; Kathleen Roe, health educators

38 EPHALUMPS AND WUZZLES

"Doc says you have what?" Learn about common eye conditions and see what they really look like (eyeball dissection).

Wani Wynne, optometrist, Kaiser Permanente Medical Center

39 NURSING - PREPARING FOR HEALTH CARE OF THE FUTURE

Find out about the positive aspects of nursing on the health care system we all use. Discover nursing as a profession for lifelong practice.

Katherine Abriam-Yago, associate professor, San Jose State University

40 NOVEL DRUG DELIVERY – A BETTER TOMORROW

You mean I don't have to take a tablet every three hours to get rid of my pain? Join us and learn how drugs are developed and delivered in the body to cure specific ailments. Learn about tablets vs. patches. We will do some simple experiments and learn how these drugs are identified.

Aruna Datla, sr. chemist; Nancy Shi, research scientist; Anissa Wong, sr. chemist; Elvira Raquinio, chemist II; Salma Siraj, chemist II, ALZA Corporation

41 ARE YOU EATING RIGHT?

Wonder how good – or bad – our diet is? Learn how to use food labels and nutrient databases to see if you are eating right.

Judi Morrill, nutrition and food science professor, San Jose State University; Diana Wright, PhD, RD, consulting nutritionist

42 VETERAMA – VETERINARY WORKSHOP

See the instruments used by veterinarians and find out about the many facts of veterinary medicine for women.

Ann Gratzek, veterinarian, owner of Ophthalmology for Animals

43 DNA DETECTIVES!

Isolate and touch your own sample of DNA and characterize DNA samples from a “crime scene” to find out who is the perpetrator.

Rebecca Ihrle; Patricia Yam; Elaine Middleman; Kathryn Drago, graduate students, Stanford Biosciences Programs

44 A BUG'S LIFE: IN THE LAB WITH E. COLI

Come and meet Escherichia coli, a common gut-bacterium and one of the most well studied organisms. Discover how this bug is capable of producing life-saving and expensive pharmaceutical problems. Then, we'll make E. coli glow like a firefly!

Jennifer Schulte; Kim Woodrow, graduate students, Stanford University

45 WHOSE 'ZYME IS IT ANYWAY?

Enzymes – find out what they are, what they do and how we identify them.

Robin L. Daskin, scientist II and colleagues, Genencor International, Inc.

46 UNRAVELING THE MYSTERY OF GENES

Ever wonder why Sally has blue eyes but her parents have brown eyes? Don't you inherit your eye color from your parents through genes? Yes, you do, but genes can be deceiving. Come use microscopes to find out why even small creatures sometimes look like their parents and other times don't.

Jami L. M. Dantzker, postdoctoral fellow at University of California, San Francisco; Karen Menuz; Brigitte Bogert, graduate students in neuroscience at University of California San Francisco

CAREER WORKSHOPS

47 WHAT IS ELECTRICAL ENGINEERING?

A career in electrical engineering?! Sounds challenging and exciting, and maybe tough? What do EE's do anyway? Come find out! You may love it and find out you can do it! We'll discuss simple, everyday problems and also some “far out” scientific phenomena that you can understand.

Lili He, electrical engineering professor, San Jose State University

48 DISCOVERING THE RIGHT CAREER FOR YOU

We will explore career opportunities and the process of finding a career that is meaningful and exciting, with a special emphasis on careers in math, science and engineering.

Andrew Lee, career consultant; Adriana Ramirez, peer advisor, San Jose State Career Center

49 WHY UCSC?

Find out why University of California, Santa Cruz may be the college for you!

Bea Atkinson-Meyers, regional representative, University of California, Santa Cruz

50 NUTRITION CAREERS – HELPING PEOPLE BE HEALTHY

Do you know what a dietitian does? Are you interested in showing people how to stay healthy, look and feel better, eat for athletic performance, and make food choices to prevent disease? Come find out the many career opportunities related to nutrition and food science.

Tawni Holmes, nutrition and food science professor; nutrition and food science graduate students, San Jose State University

51 START YOUR OWN HIGH-TECH BUSINESS!

Suppose you have a terrific idea to start a company – how would you begin? We'll show you how a good business plan and teamwork can make it happen!

Dr. Laura Mazzola, partner, Quantum Insight; Linda K. Molnar, NASA Ames Research Center and The Girvan Institute

52 WOMEN IN HIGH TECH CAREERS – BEING TECHNICAL IS YOUR SECRET WEAPON

High Tech is often described as Alphabet Soup: full of many acronyms like RAM, JPG, MPG, UNIX. We'll review the many acronyms so you will be able to use them to impress your friends, family and teachers. Come and meet two hip, tech savvy women who will explain the importance of technology and how you can use it as your secret weapon to a better and —bright future!

Mona L. Hudak; Erica J. Samoranos, IOS release operations program manager, Cisco Systems

53 HOW TO USE SCIENCE AND ENGINEERING IN SERVICE TO YOUR COMMUNITY

Find out information on positions within local government that are non-traditional for women, with emphasis on the engineering and technology-based positions, including civil engineers, hydro-engineers and technicians, information technology personnel, and environmentalists, among others.

Nadine P. Levin, assistant city manager, City of Mountain View

54 DOCTOR? NURSE? WHAT OTHER CAREER CAN I CHOOSE IN THE HEALTH FIELD?

Interested in the health field but wonder what other career you could choose besides being a doctor or a nurse? Come talk with young women with fun and interesting careers in health.

Dr. Kathleen Roe, chair, health and science department, San Jose State University; health educators; health administrators; public health professionals

WORKSHOPS FOR ADULTS

A1 DISCOVERING THE RIGHT CAREER FOR YOU

We will explore career opportunities and the process of finding a career that is meaningful and exciting, with a special emphasis on careers in math, science and engineering.

Andrew Lee, career consultant; Adriana Ramirez, peer advisor, San Jose State Career Center

A2 COLLEGE CHOICES

How can your daughter choose a college or university to meet her educational goals? Learn about various programs that are available. Find out about application procedures.

Admissions officers from San Jose State University, U.C. Santa Cruz, San Jose City College, Santa Clara University, Mills College

A3 PREPARING FOR COLLEGE ADMISSION PROCESS

This session will guide your daughter (or son) through the admission process. Information will be organized by grade and begin with what to do in eighth grade to prepare your child. Tips on the admission process, the dreaded college essay and the SAT-I and ACT examinations will be provided.

Joan Jaffe, Associate Dean of Admission, Mills College

A4 THE PRACTICAL SKY

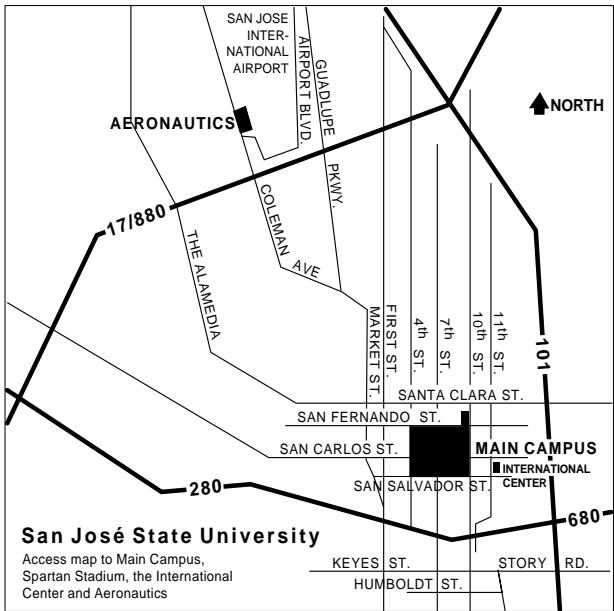
Learn to use stars as a compass, a clock and a calendar.

Tinka Ross, planetarian, Morrison Planetarium at California Academy of Sciences and with the portable Star Lab

A5 FINANCIAL AID – MEETING COLLEGE COSTS

Information on the types of financial aid available.

Coleetta E. McElroy, assistant director-Financial Aid and Scholarship Office, San Jose State University



San José State University is bordered by San Fernando and San Salvador streets on the north and south, and Fourth and Tenth streets on the west and east. The campus is in the triangle formed by three freeways, 101, 280, and 17/880.

From U.S. 101: Take Interstate 280, exit at Seventh Street, proceed north to the

main campus.

From Interstate 880 South: Take 101 to Interstate 280, exit at Seventh Street, proceed north to the main campus.

From Interstate 680 South: Interstate 680 becomes Interstate 280 (at U.S. 101), exit at Seventh Street, proceed north to the main campus.

Park in the 7th Street Parking Garage

