

Conference Mission

Our mission is to increase girls' interest and achievement in science, technology, engineering, and math.

Important Notice!

Adult identification will be required when picking up students after the conference. Drop-off and pick-up instructions will be included in your registration confirmation.

Maps and driving directions will be included in the registration confirmation letter.

Please watch for this confirmation letter.

If you have not received a confirmation by March 6th, please check the website for instructions (www.seattleu.edu/seyh), or email info@seyh.org.



Seattle University is wheelchair accessible. There is no secure facility for storing personal belongings.

Volunteers onsite will direct girls to their workshops.

To request information, contact SEYH
Email: info@seyh.org

Website: www.seattleu.edu/seyh

Voicemail: 206-296-2117



SEYH T-shirts will be available for \$10 on conference day.



Conference Information

The conference will be held at Seattle University on **Saturday, March 14th, 2009.**

Registration Deadline:
Wednesday, February 18

Registration Fee:

\$15 per person (non-refundable)

The conference is limited to 410 girls on a first-come, first-served basis. The conference fills quickly, please register early. Scholarships are available to girls experiencing financial hardship.

Conference Schedule

Pre-registration is required. The girls' workshop schedule will be available at check-in on conference day.

Check-in:

Check-in takes place in Pigott Atrium from 8:00 to 8:30 a.m. The girls attend an opening assembly and three workshops, starting at 8:30am. A pizza lunch and raffle follow the third workshop, and the girls are finished at 1:30 pm.

For parents and other adults (FREE):

Join other teachers, parents, interested adults, and local experts from 8:45 to 12:00 to discuss the importance of involving girls in science, technology, engineering, and mathematics. Practice strategies for engaging girls in science, and leave equipped with information and resources. Light refreshments will be provided. The workshop will end at noon to allow time for lunch before picking up SEYH participants. (Lunch is not provided.)

Check-in takes place at 8:15-8:45 am in Room 160 of the Student Center. Please pre-register using the attached form to help us with capacity planning.

Seattle

Workshops for Girls

Expanding Your Horizons 2009

Biology

[1] Play the Immune Response Game!

Join the immune system team and learn how your immune system protects you from foreign pathogens (bacteria, viruses, parasites) that can make you SICK. Play the role of the major immune cell types, identify an invading pathogen and mount an immune response to the invader. *Allison Bianchi, Senior Scientist, Amgen, Inc.*

[2] Become a CSI

(Community Structure Investigator)

Come learn about critters living in sand, mud of bays, and rivers. Learn what tools biologists use to describe the types of critters living together in a community structure. Look at saltwater and freshwater critters under a microscope! *Helle Andersen, Environmental Scientist, Windward Environmental LLC*

[3] Glowing Fish Brains: What Fish Can Tell Us About Being Human

Even though they look so different from us, newly hatched zebra fish babies look remarkably similar to human embryos at the very beginning of their lives and have a lot to teach us about how our brains, hearts and other organs develop. We will look at fish mutants which have problems in their early development and also observe fish whose brains glow green under a black light. *Hilary Kemp, Postdoctoral Fellow, Fred Hutchinson Cancer Research Center*

[4] Find Willie's Whale Pod!

Investigate DNA sequences and morphology of dolphins and whales to determine their "family trees." This information can be used to determine whether a population is endangered, and is useful in helping conservation geneticists manage threatened species. *Margaret Mills, Graduate Student, University of Washington*

[5] Heads or Tails?

Early Development in Vertebrates
Genes and proteins determine how an embryo develops. You will learn about the first few days of vertebrate development and will have the opportunity to view and manipulate live fish and frog embryos at various stages of embryogenesis. *Lina Dahlberg, Graduate Student, University of Washington*

[6] Have a Heart!

Learn about the structure and function of the sheep heart, which is very similar to the human heart. Preserved specimens will be explored to find the four chambers of the heart, the incoming and outgoing vessels, and the heart valves. We will also make drawings to illustrate the routes of blood flow through the body. *Rebecca Hartley, Ph.D., Associate Professor of Biology, Seattle University*



Expanding Your Horizons 2009

[7] The Good, Bad, & The Delicious
Bacteria are all around us, some are friendly and some are not! Come explore their world and harness their power for good: making awesomely tasty yogurt! *Sara Hudson, Graduate Student, University of Washington*

[8] Find Your Blood Donor
Ever seen antigens on the surface of a red blood cell? Analyze blood samples and identify the blood type, then match a donor to a recipient. Explore genetics and learn why you have the blood type you do. *Leslie Kim, Molecular and Cellular Biology, University of Washington*

[9] Bacteria: Friends or Enemies?
Learn about the diversity of bacteria in the environment and the different ways they interact with each other. See a complete, functioning ecosystem based on bacterial interactions. Do an experiment to look at the competition of bacteria in nature and see the working of antibiotics made from bacteria. *Jocelyn Muller, Microbiologist/Senior Fellow, University of Washington*

[10] How Do Orange and Black Cats Differ?
Using techniques employed by researchers in genomics and biotechnology, look at DNA sequences from cats and learn how to predict the coat color from the genetic information. *Dina Kovarik, Research Assistant, University of Washington*

[11] It's Not Easy Being Green
Do you like chocolate? Ever take aspirin for a fever? Plants are really amazing. We will take a close-up look at basic plant molecules used for food, clothing, construction, and medicines. Learn how plant biologists are changing plant DNA to make plants stronger and healthier. *Jennifer Nemhauser, Biology, University of Washington*

[12] YUCK! What Did You Say Was in My Mouth?
Explore the exciting world of microbiology... in your mouth! Be a 'microbial detective' and learn how to identify some of the different types of bacteria using the Gram stain and a microscope. Stain cells from your own mouth and see what happens with a bite of yogurt or a swig of mouthwash. *Catherine Reardon, Post Doc, Pacific Northwest National Laboratory*

Chemistry

[13] The Chemistry of Fireworks
Have you ever wondered why fireworks are different colors? In this workshop you will be able to burn different metals to see what colors the flames are and we will relate that to why fireworks are different colors. *Becky Olsen, Ph.D, University of Washington*

[14] Tiny Bubbles
Everyone loves bubbles... but few know all the science involved in understanding those pretty bubbles. Come and investigate soap bubbles, soap films, surface tension, and find out why rain drops are round. Find out how these fragile bubbles are stronger than you think! *Nancy Ruzycski, Research Associate, University of Washington*

[15] Explore Labels, Investigate Ingredients and Make a Lotion!
Come find out the truth behind labels. Labels will often say "natural" or "not tested on animals." When can these phrases be used by companies and what exactly do they mean? Learn how ingredients are developed and tested. Create your own homemade lotion with kitchen ready recipes you can take home! *Reitha Weeks, Ph.D., Resident Scientist and Program Manager, Northwest Association for Biomedical Research*

[16] Kitchen Table Chemistry and Junk Drawer Physics
Make "gak", Martian handprints, and other science toys to impress your friends, family, and teachers. Use ordinary things from around the house to make funny and messy science projects to take home. *Kathy Burrows, National Trainer, Giant Campus*

Computer Technology

[17] Design a Tea Party
What aspects of human-technology interaction are present in the design of a tea party? We will look at the role of aesthetics and the user capabilities in planning a tea party. See how these concepts parallel with engineering and specifically with software design. *Lilia Gutnik, Program Manager, Microsoft*

[18] Computer Graphics Fun: Games and Movies Tell a story!
Learn to design and build your own mini animated movie or computer game! Using Alice, a free graphical software language with many built-in graphical icons, we will explore basic problem-solving techniques used to manipulate, resize, move and animate icons. You will take home a CD with samples and many ideas that will help you continue to create. *Adair Dingle, Ph.D., Professor of Computer Science, Seattle University*

[19] I'm Feeling Lucky: How Google Really Works
When you do a Google search, what really happens? Here's a hint: it's not all luck! Come learn about the science and engineering behind Google and create your own search engine! *Amanda Camp, Software Engineer, Google*

[20] Rockin' Technology
See how technology has improved the ability to create, record and manipulate sound. Learn the difference between vinyl records and electronic equipment. Get a hands-on lesson with microphone, turntables, headphones and recording/playback software. *Annette Suh ("Niz"), Radio/Club DJ*

[21] Be a Web Detective
Have you ever asked yourself how your parents can tell where you've been on the web? If so, come to this workshop, learn to use PC computer network analysis tools, and become an official Web detective. *Judith Herman, Programming Writer, Microsoft*

[22] Computer Autopsy
Ever wondered what's inside that grey box? Dissect a PC and discover how it works! *Leah Etienne, Software Engineer, Microsoft*

[23] Create Your Own Computer Animation
Learn how to make your very own computer games, animated stories and interactive art that can be shared with others on the Internet! *Karen Lowe, IT Auditor/Senior Associate IT Advisory, KPMG LLP*

[24] Programming Snazzy Fractals
What's a fractal? A cool geometric shape! Yes, but delving behind the graphical display, we'll look at software for the generation of fractals. Using a step-by-step process, we'll explore how to write code to produce an enchanting geometric figure that repeats itself indefinitely with ever decreasing dimensions. *Roshanak Roshandel, Ph.D., Assistant Professor, Seattle University*

Engineering & Math

[25] What's Lurking in Your Water?
Become an environmental engineer for a day. In this workshop we will learn about how environmental engineers clean our drinking water by designing and building a bench-top water treatment process. *Anne Conklin, Engineer, Carollo Engineers*

[26] Wings!
How do airplanes stay up in the air? Build and launch your own gliders. Explore the aerodynamics of airplane design and some of the things aeronautical engineers do. *Peg Curtin, Aeronautical Engineer, Boeing*

[27] Robots and Sensors
Learn how to build and or program a simple robot. We will explore different sensors that can be used to direct the robot, like light, sound, or touch. *Melissa McQueen, Mechanical Engineer, Boeing*

Saturday, March 14, 2009
8.00 am to 1.30 pm

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February 18, 2009 at the latest!

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the conference fills quickly!

[28] Does it Feel Hot in Here?

Do you have what it takes to engineer a heat shield that can withstand temperatures of 3000 degrees? Using some common hardware materials and a propane torch, we'll simulate some extreme heat transfer situations and you can test your own designs. *Mary Margaret Callahan, Director of Youth Programs, Giant Campus*

[29] Light Up With Electronics

We'll experiment with electronics components, build a cute little light-up heart and learn about other fun projects you can do at home! No prior knowledge needed - just be ready to piece together a puzzle unlike any other! *Chelsea Ryberg, Undergraduate Student, Electrical and Computer Engineering, Seattle University*

[30] Risky Business

Have you ever wondered why teenage girls have lower car insurance rates than teenage boys? Actuaries are math whizzes--we study risk and help insurers and other companies protect themselves against the unknown. Put your math skills to the test to solve real-life puzzles like those solved by actuaries. *Kathryn Rains-McNally, Associate Actuary, Milliman*

Earth & Environmental Sciences

[31] Swimming in Toxic Streams

When it rains, it pours. Where does all that water go? Learn how storm water brings pollution to streams and rivers, and why coho salmon are dying in our urban streams. *Casey Ralston, NOAA's Northwest Fisheries Science Center*

[32] Tsunamis!

Tsunamis are a natural disaster that can happen in Washington. Come learn about why tsunamis occur and what to do to survive a tsunami. We'll make our own tsunamis and learn how to protect a virtual village from tsunamis. *Bre MacInnes, Earth and Space Sciences Department, University of Washington*

[33] More Than Just Giant Blobs of Ice: Glaciers and How They Work

What do the Cascades, Montana, New York City, Greenland, and Seattle all have in common? They have been heavily influenced by the presence of glaciers. Make your own glacier to see how they move, and learn how they have shaped the land in Washington state and beyond. *Rachel Headley, Earth and Space Sciences Department, University of Washington*

[34] Volcanoes in Your Backyard

Come learn about volcanoes and volcanic hazards right here in the Pacific Northwest. In this workshop you will do hands-on experiments to learn about lava, hot ash flows, and gas-driven eruptions, including making your own small eruption! *Theresa Kayzar, Earth and Space Sciences Department, University of Washington*

[35] Dig This!

Learn about the science of archaeology. Then examine artifacts to find out how to use skills of observation, identification, and interpretation to come to a conclusion about the past. *Heidi A. Lennstrom, Ph.D. Archaeologist & Science Program Manager, Girls Scouts of Western Washington*

Health Sciences

[36] Good Drugs for Bad Bugs!

Our bodies meet microorganisms daily. Medicines, like antibiotics, are the real secret agents when our immune systems need some help defeating the harmful ones. Test a number of home chemicals, like Listerine, to see how well they battle bacteria in the real world! *Theresa Britschgi, MS, BioQuest Director, Seattle Biomedical Research Institute*

[37] Pathologists: Disease Detectives!

Learn about how pathology is used in medicine and by researchers. You will see one of the most important stains in Pathology: the H&E stain. This stain is used to view structural or chemical changes in cells to help doctors and researchers find where and what type of disease is present. You will perform the H&E on your own cheek scrapings and on normal and cancer cell lines. *Rachel Gonzales, Breast Cancer Research/Assay Development, Pacific Northwest National Laboratory*

[38] The Fungus Is Among Us

Everyday, you come into contact with a lot more fungus than you may think! It's in the air you breathe, the soil you walk on, and many of the foods you eat. In this workshop, you will test mouth wash, bleach, Rock Star energy drink, and other household products to see which works best at killing a mystery fungus. *Rosalind Billharz, Graduate Student, Microbiology, University of Washington*

[39] Say Ahhh...Diagnosing Diseases

Have you ever wondered what all those instruments in the doctor's office are for? Come learn about how these tools are used to diagnose people when they are sick, and how Nurse Practitioners care for patients. *Adrienne Woike, Nurse Practitioner, The Everett Clinic*

[40] What Really Happens Behind the Pharmacy Counter?

Learn about all of the different "hats" a pharmacist wears to fill prescriptions: law enforcer, forgery detective, problem solver, insurance expert, and customer advocate. Step behind the counter and take on these roles. *Katrina Prokopovich, Pharmacist, Walgreens*

Physics

[41] It's Electric

Learn what it takes to light up your world. See a pickle glow. Explore ways to light up the night with stuff from home. *Viki Mirgon, Physics, University of Washington*

[42] Arcs 'n Sparks

Have you ever looked up at a thundercloud and wondered, "What is lightning?" Learn about natural electricity and create homemade lightning in this zapping workshop. *Diane Heidelberg, Electromagnetic Effects Technology, Boeing*

Zoology

[43] A Rat's Tale

Experience hands-on how laboratory animal veterinarians train researchers and animal care staff to comfort and work with rats. Learn how we house and care for the rats. *Kari Kozdin, Veterinary Medical Officer, UW and Veterans Affairs Puget Sound Health Care System*

[44] Imagine Becoming a Veterinarian

Explore the mysteries of being a veterinarian. Learn about diagnosing and treating animal illness, including the use of x-rays, surgery, laboratory tests, parasite identification, and more. *Sherrie Crow, DVM, Veterinarian, Elliott Bay Animal Hospital*

[45] Animal Magnetism

Come learn about the fun and fulfilling field of veterinary medicine. We will evaluate some x-rays, perform a physical exam and even have a special guest! *Maria Owen, DVM, Veterinarian, Veterinary Radiology*

