

CEYH 2010 Workshop Descriptions

WORKSHOP CATEGORIES (in parenthesis after each title)

ML - Medical/Life Sciences ET - Engineering/Technology/Physics

CM - Computer Science/Mathematics GS - General Science



- 1. The View of the Cosmos in the Infrared (ET)**
Some of the exciting developments in astronomy and astrophysics
- 3. Making Waves: Geophysics from Antarctica to your Home (ET,CM)**
Learn how geophysics is used in Antarctica and elsewhere. Create different seismic waves and build your own geophone (seismic instrument).
- 4. Where the Wild Things Are (ML)**
When data is collected for animal populations of different species, a geographic information system (GIS) can enhance visualization of results in graphic representations. A GIS allows us to question and interpret geographically referenced data so that we can analyze and manage relationships and patterns to understand them better through our own critical thinking. Let's apply freely available GIS software to see what we can deduce! Then we can discuss how we might use a GIS in other scientific arenas.
- 7. Why yes, as a matter of fact, You Can Be a Rocket Scientist (ET)**
What it takes to be a rocket scientist, some handouts, and a chance to build your own small rocket.
- 8. Fun with Binary Numbers (CM)**
Did you know there are others ways to count besides using 0-9 digits? Information like the paper you wrote on your computer or the picture you took with your cell phone is stored in memory as binary numbers. In this workshop you'll learn how to count in binary. You'll also learn a magic trick that demonstrates a simple way to detect and correct errors in memory.
- 11. Guns+Science = Crime Solving (GS,ET)**
Fire arms analysis is both challenging and rewarding. Learn how you can give a voice to the evidence and help solve crime!
- 12. Science Fiction Made Real: Directed Energy (ET)**
Learn about how scientists and engineers are applying new laser and high power microwave technology to make futuristic systems that will save lives. Basic science will be explained. Videos and hands on demonstrations.
- 21. Loud and Flying... Circuits! (ET)**
Circuits are everywhere, in your computer, microwave, cell phone and even your alarm clock. Learn the basics in this hands-on workshop, by building circuits - some that even fly!
- 22. Manufacturing a Bright Future (CS)**
Use of LEGOs to simulate a manufacturing system.
- 23. Where Do You Live, Learn, Play and Work? (ET,GS)**
How do architects, engineers and designers create the places where live, learn, play and work and how does that change the environment and how we do our activities each day.
- 24. Model Your Own Reality (CS)**
Modeling and simulation of industrial systems.

Updated 4/1: Following workshops cancelled due to low registration numbers.

- 2. ~~Critters of the Deep (ML)~~ CANCELLED**
How the fish in a stream or lake can tell the story of the ecology: who lives where and who eats who.
- 5. ~~Do Feathered Dinos Soar? (ML,GS)~~ CANCELLED**
Interactive lesson on how biologists figure out how groups of animals are related to each other. We'll investigate common species, dinosaurs, and birds to see if there are living dinosaurs among us today.
- 6. ~~Glass: A Strong, Beautiful, and Essential Material (ET)~~ CANCELLED**
Performance and failure analysis of brittle materials including glass
- 9. ~~Properties of Matter, How Cool Can You Get? (ET)~~ CANCELLED**
Explore the various properties of matter as they go from room temperature to near absolute zero. Would a balloon still float? Could you eat a banana? What about marshmallows? Come join us for lots of fun learning and find out!
- 10. ~~The Atoms Family: an Introduction to Nuclear Science (ET)~~ CANCELLED**
This session will introduce students to radiation and nuclear technology. They will have the opportunity to "see" radiation using a cloud chamber and learn about radiation in their environment. They will also learn to use Geiger Counters to detect radiation sources.
- 13. ~~Girl Power: Solar Fountains (ET)~~ CANCELLED**
Come learn about solar electricity and help build a solar fountain. You may want to wear your bathing suit underneath your clothes. Guaranteed to get wet and love it.
- 14. ~~Weather Prediction (CM)~~ CANCELLED**
How the models and data are used to make the weather prediction.
- 15. ~~The Stuff That Makes All Things: Materials Engineering (ET)~~ CANCELLED**
A hands on introduction to what Materials Engineering is and what Materials Engineers and Scientists do. Everything we use in daily life is made of stuff and Materials Engineers help to make it. Demos and Examples of the main types of engineering materials: metals, plastics, ceramics, and composites.
- 16. ~~Super Models: Using the World's Fastest Super Computers to Help People and Society (CM)~~ CANCELLED**
Learn how today's supercomputers are helping scientists and engineers solve real world problems, ranging from detecting cancer in people to designing the next generation of ipods and laptops. Learn about charges and electricity and then watch how a supercomputer modeled an electromagnetic wave traveling around the world!
- 17. ~~Microbes: The Good, the Bad and the Ugly (ML)~~ CANCELLED**
We will investigate how yeast turn energy from sugar into carbon dioxide and how diseases spread through populations.
- 18. ~~Magnetic Carpet Ride (ET)~~ CANCELLED**
Take a quick ride through the Sun's magnetic field that causes space weather across the solar system and affects satellites and even life on earth.
- 19. ~~You Go Girl! Decoding Barbie the Computer Engineer's Binary Shirt and Circuit Board Jacket Pattern (ET)~~ CANCELLED**
Barbie the Computer Engineer is making her debut later this year. Do you know the "secret" code on her shirt and laptop? Can you interpret the circuit board pattern on her jacket? After this workshop: YES YOU CAN! We will have demos on a pink laptop.
- 20. ~~Medical Lab Science (ML)~~ CANCELLED**
(no description at this time)

Workshops subject to change - check for updates at
<http://nmnwse.org/ceyh/workshops.php>