

More **FREE** and low-cost
PUBLIC SCIENCE SEMINARS
from the
Academy of Science – St. Louis
and its friends and partners.

Conservation Conversations

A Zoo/Academy conservation science partnership series
7:30 – 9 P.M. at the Saint Louis Zoo

OCT 26, 2010

Conserving the Cool: Humboldt Penguins

NOV 23, 2010

Creepy Crawly Conservation

JAN 18, 2011

Aiding Armenian Vipers

FEB 22, 2011

Congo's Curious Chimps

**Whitney and Anna Harris
Conservation Forum**

A public forum partnership of the Academy, UMSL Whitney
R. Harris World Ecology Center, the Saint Louis Zoo, and the
Missouri Botanical Garden

NOV 10, 2010

**Global Climate Change: Environmental Impacts,
Human Society, and Policy**

Time: 6 – 9 P.M. Location: Missouri Botanical Garden
FREE and open to all, but advance registration is REQUIRED.
Call 314-516-5219 for more information or to register.

Additional Science Series

Art & Science: Making Creative Connections

On Science Series

Perspectives on Science & History Series

Pioneering Science Series

More Information Is On **Our Website!**

Information on additional events and programs,
and details for the above listed series are available on
our website: www.academyofsciencestl.org
or call 314-533-8586.

**ALL SEMINARS
WILL BE HELD IN
THE ZOO
LIVING WORLD**

**NOV. 3 SCIENCE CAFÉ
AT THE ZOO'S RIVER CAMP**

**SEMINARS ARE WEDNESDAY
EVENINGS 7:30–9 P.M.**

**PARKING IS FREE IN THE ZOO NORTH
LOT (SOUTH LOT FOR SCIENCE CAFÉ).**

Adults, teachers, middle and high school
students, and the general public are invited
to attend these no-cost lectures on topical
issues in science. For further information
call 314-646-4544 or 314-533-8586.

Zoo programs and facilities are available for people of
all abilities. Please contact the Zoo at 314-781-0900 or
TDD 314-646-4636 if there is anything the Zoo can do to
make its programming or facilities more accessible.

The **Academy of Science** is dedicated to building a scientifically
savvy public and developing the next generation of scientists
and science advocates. For more information on the Academy's
free and low-cost community-wide science programs, visit
www.academyofsciencestl.org or call 314-533-8586.

Connecting science and the community® since 1856.

The **Saint Louis Zoo** conserves animals and their habitats
through animal management, research, recreation, and
public educational programming. Visit www.stlzoo.org.

Nestle Purina PetCare is proud to support Academy Science
Speakers and Scientists in the Classroom.



*The Academy of Science and Saint Louis Zoo do not endorse any
company, institution, or individual, but present science speakers,
community-wide public seminars, talks and workshops, to increase
awareness and understanding of science and its powerful role in
our public and private lives.*

The Academy of Science – St. Louis
5050 Oakland Avenue
St. Louis, Missouri 63110

**SCIENCE
SEMINAR
SERIES**

2010–2011

**Emerging Frontiers
in Science
and Innovation:**

From life on Mars to intelligent power
grids, Community-wide Seminars cover
the latest in astrobiology, computer
engineering and intelligent systems
science, renewable energy, animal
communication, the Barrow Alaska Global
Climate Change Lab, and a Science Café
on what we think we know about science.

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WEDNESDAY, OCT 6, 2010; 7:30 – 9 P.M.



Are There Martians in Australia?

Melanie Mormile, Ph.D., Professor of Biological Sciences, Department of Biological Sciences; Joint Faculty Appointment, Department of Geosciences and Geological Engineering; Senior Investigator, Environmental Research Center, Missouri University of Science & Technology

Astrobiologists are intrigued by evidence that Mars had acidic saline waters. If our closest planetary neighbor once possessed water, it may also have harbored life. Western Australia, with its hyper-saline lakes, is one of the few places on Earth similar to Mars. Both possess strikingly similar sedimentary deposits produced in very salty and acidic waters. If life existed on Mars, it likely would have been similar to the microorganisms that thrive in the lakes of Australia.

Dr. Melanie Mormile takes us on a journey of discovery to Western Australia with a group of geologists and microbiologists to study the area's hyper-saline lakes and the possibility of life in these salty, acidic and metal-rich conditions. And she tells us what their journey of discovery says about the possibility of life on Mars.

WEDNESDAY, NOV 3, 2010; 7:30 – 9 P.M.



Irrational Scientific Ideas: A Science Café

engaging, casual, comfortable conversation exploring what we think we know about science

Hal Harris, Ph.D., 2010 Outstanding St. Louis Scientist Educator Award recipient, Academy of Science – St. Louis; Associate Professor of Chemistry and Education, University of Missouri - St. Louis; author of the online Journal of Chemical Education column, Hal's Picks of the Month

Ideally, science is an open process of investigation, followed by competition between ideas as judged by knowledgeable peers, and constantly tested by measurements. It doesn't always work that way, and public discourse about scientific subjects often

bears only accidental resemblance to science itself, leading to unwise investments of public and private resources.

Americans haven't made up their minds about science. We bought 8.6 billion gallons of expensive bottled water in 2008, because bottled water contains fewer "chemicals" — or does it? We flock to "health food" stores that resemble the chemical storerooms of research laboratories. Is our chemophobia switch turned on and off between storefronts? Are cell phones and wireless devices safe for adults and children? What does the best science say about this? People want to be more environmentally responsible but not at the cost of money or convenience. The transition from fossil fuels is likely to be both costly and inconvenient. Which alternatives look best?

There's lots of time for questions in this thoughtful and engaging Science Café sure to challenge your irrational scientific ideas.

SCIENCE CAFE at Saint Louis Zoo River Camp

Location: Zoo south entrance – Parking FREE in south lot

Refreshments available: water, lemonade, and coffee



WEDNESDAY, DEC 1, 2010; 7:30 – 9 P.M.



Flipping the Switch: Brain Science Potentials for Smart Grid Technology

Ganesh Kumar Venayagamoorthy, Ph.D., 2010 Outstanding St. Louis Scientist Innovation Award recipient, Academy of Science – St. Louis; Associate Professor, Department of Electrical and Computer Engineering,

and founder, Real-Time Power and Intelligent Systems Laboratory, Missouri University of Science and Technology

Brains are exquisitely good at adaptive, real-time interaction with the world. Their neural systems are highly effective at time-critical control problems because they adapt and learn. Brain inspired technologies such as the smart grid – an intelligent electricity infrastructure – could revolutionize the control of large complex infrastructures like our nation's electric grid. Biologically-inspired artificial neural networks (BIANNs) have the potential to provide increased responsiveness to changing power loads and component

failures, improve the behavior of the power network and grid reliability, ensuring better stability and security, maximum utilization of renewable energy, and reduction of greenhouse gas emissions.

Dr. Venayagamoorthy talks about the marriage of information-age technologies with neuroscience and their promise to revolutionize how we flip on the lights in this fascinating look at the future of our nation's power grid.



WEDNESDAY, FEB 2, 2011; 7:30 – 9 P.M.



Left Out in the Cold: The Story of the Barrow Global Climate Change Research Lab in Barrow, Alaska

Janet Baum, AIA, Trustee, Academy of Science – St. Louis; retired founding partner of Health, Education + Research Associates, Inc.; lead programmer and planner, Barrow Global Climate Change Research Lab

The Inupiat Native Americans (Eskimos) have continuously inhabited the North Slope of Alaska for 10,000 years. Just a few summers ago, the permanent Arctic sea ice pack was only a few hundred yards off the coastline of Alaska. Now it lies over one hundred miles away, and the gap is increasing. For the Inupiat, traversing this gap for subsistence hunting in sealskin canoes poses great risk. Looking to find a way to provide steady occupations and income for their people (without resorting to oil drilling), the Inupiat commissioned the building of the Barrow, Alaska laboratory to study climate change. Through this, the Inupiat tribe is working to ensure their survival and preserve the Arctic landscape upon which they depend.

The project's lead programmer and planner, retired HERA founding partner Janet Baum, tells the remarkable story of place, people, and environmental preservation in *Left Out in the Cold*.

WEDNESDAY, MAR 2, 2011; 7:30 – 9 P.M.



Re-Energizing America: Renewable Energy Solutions for the Future

an energizing and lively talk and book signing

Dan D. Chiras, Ph.D., Founder and Director, The Evergreen Institute; President, Sustainable Systems Design, Inc.; and nationally known author of more than two dozen books on green building, residential renewable energy and sustainability

Rising demand for oil and natural gas could cause devastating price increases and possibly result in major social, economic, and environmental disruptions across the globe. Evergreen Institute director and author, Dan Chiras, describes how we can avert disaster by turning to renewable energy now, talks about renewable energy's potential to meet our needs, and how we can heat our homes, cook food, provide hot water and generate electricity via clean, affordable, and reliable renewable energy technologies.

Books available for signing and purchase after the talk.

WEDNESDAY, APR 6, 2011; 7:30 – 9 P.M.



Squeaks and Scents: The Neurobiology of Animal Social Communication

Timothy E. Holy, Ph.D., 2009 Outstanding St. Louis Scientist Innovation Award recipient, Academy of Science –

St. Louis; Associate Professor of Anatomy and Neurobiology, Washington University School of Medicine

In attempting to understand animal communication, we are confronted by fundamental questions: What are the signals? What do they convey? How are they produced? How does the brain interpret these signals and use them to guide behavior? Scientists hope that studies of social communication in animals may lead to a better understanding of the natural world and of the brain itself. Neurobiologist, Dr. Timothy Holy, gives us the inside scoop on the neurobiology of animal social communication, with an emphasis on two examples of communication among mice: chemical signals, often called pheromones, and "courtship songs" sung at frequencies too high to be detected by human ears.