



SAMEC E-news 04-06-07

You can also view an online version of the newsletter at: <http://samec.lpl.arizona.edu/resources/e-news04-06-07.pdf>

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Providing Students with Paths to Careers with a Joint Technological Education District (JTED), April 24, 2007

SAMEC Outreach Seminar , Tuesday, April 24, 2007, 3:45 - 5:00 PM

Guest Speaker: Dr. Mary Belle McCorkle, Interim Superintendent, Joint Technological Education District (JTED)

Office of the Pima County School Superintendent

What is a Joint Technological Education District (JTED)? Find out more about what it is and how it is formed . . . The Pima County JTED will play a vital role in helping the county's businesses close the shortage of skilled labor gap by building a competitive workforce for the 21st Century.

Location: Marvin Swede Johnson Bldg., Room 303 (northwest corner of Speedway Blvd. and Cherry St.), Free parking is available on the north side of the building.

For further information contact: samec@lpl.arizona.edu or 621-8309 or visit <http://samec.lpl.arizona.edu>

Science Teacher's Colloquium Series, April 24, 2007

The Science Teacher's Colloquium Series is a forum for K-12 science teachers to learn about cutting edge research taking place at The University of Arizona. One (1) hour of professional development credit is offered for attending each seminar.

* April 24, 2007, 7:30-8:30 pm: *Mars: Up Close and Personal*, Alfred McEwen, Professor, Lunar

and Planetary Laboratory

Experiment on Mars Reconnaissance Orbits has been exploring Mars at high resolution since November 2006. The HiRISE (High Resolution Imaging Science Experiment) Principal Investigator will share some of these remarkable vistas and discuss the past, present, and future exploration of Mars.

Location: University of Arizona, Kuiper Space Sciences Bldg., 1629 E. University Blvd.

This series is sponsored by The University of Arizona Lunar and Planetary Laboratory, The UA/ NASA Space Grant Program, The Space Imagery Center and the Science and Mathematics Education Center, which provide funding for this program.

For additional information visit: <http://www.lpl.arizona.edu/COLPL/>

Phoenix Mars Mission Open House, May 05, 2007

The Phoenix Mars Mission's Science Operations Center will open its doors to the public in the final open house leading up to the lander's August 2007 launch. Come and see the real engineering model that scientists are using to train for surface operations on Mars. Enjoy hands-on activities, tours, exhibits, and hear UA researchers and professors discuss the science, and art, behind the mission.

Location: Science Operations Center, The Northwest corner of N. Sixth Ave. and E. Drachman St., Entrance at back.

Time: 10:00-5:00 pm

Parking: Free parking is available at the University of Arizona's 2nd Street Garage where a free shuttle will take visitors to the event. Limited on-street parking is also available near the S.O.C., and disabled-accessible parking is located at the south entrance. See map for more details.

Cost: Free

<http://phoenix.lpl.arizona.edu/eventsPosts.php?eID=47>

Exploring Light Through The Eyes of The Hubble Space Telescope (HST) Workshop for Teachers, July 9-12, 2007

The discovery over the past decade of over 100 planets orbiting stars other than our Sun has revolutionized the field of studies of extrasolar planets. Most discoveries have been made by measuring the variable Doppler shift of the parent star spectrum caused by the gravitational pull of the planet as it orbits around the star. Another method of study has been provided by planets with orbits inclined so that the planet transits in front of the star. HST was the first telescope to detect additional obscuration during the transits, at certain wavelengths, providing the first detection of the atmosphere of an extrasolar planet. This free workshop will highlight the discovery of extrasolar planets such as the famous HD 209458b observed with the NASA/ESA Hubble Space Telescope. Workshop participants will receive GEMS Messages from Space teacher's guide and kit, 24 hours of professional development credit. For more information contact samec@lpl.arizona.edu

The application is available at: <http://samec.lpl.arizona.edu/k12educators/light2007.html>

Is Spring Here Yet?

Phenology is the timing of seasonal events such as bud break, germination and flowering time: well-known indicators of the arrival of spring. Early clues to the onset of spring have been used for centuries by farmers to maximize crop production. Today, phenological patterns are used to track the effect of climate change on plants and animals, to anticipate wildflower displays (and allergies), and to make predictions about fuel loads and wildfires, and about when to plant our gardens.

The U.S. National Phenology Network (NPN) was created in 2006 to facilitate the collection and sharing of phenological data that can be used to observe historical and current patterns, and to predict upcoming events. Project BudBurst is an annual campaign designed for the public; it represents the combined efforts of scientists and educators interested in encouraging citizen scientists to record flowering times in nearby natural areas and neighborhoods.

Six steps will enable you to contribute your phenological observations to Budburst's nationwide database and to examine the results:

- 1) Go to the Project Budburst website (<http://www.budburst.org>), where you may subscribe (it's free!) and find complete directions at the Participate! link. Here you will:
- 2) Select and identify one or more species for observation using the plant list or by geographic area;
- 3) Locate the site where you may observe each species, including its latitude and longitude;
- 4) Determine which phenophase (phenological stage) you are looking for (e.g., Budburst/First Leaf, First Flower). For help, you may download plant descriptions by selecting species from the "Plants by List" link.
- 5) Report your observations (the dates of each phenophase) on-line.
- 6) Compare your observations on our maps to thousands of others around the country.

With your help, we will compile phenological information that will be compared to historical records to see how our backyards, parks, and forests are changing. You can do your part by participating in Project Budburst! Project Budburst is a collaborative effort of the Chicago Botanic Garden, Plant Conservation Alliance, ESRI, National Science Foundation, National Phenology Network, UCAR Office of Education and Outreach, University of Arizona, University of Montana, University of California – Santa Barbara, University of Wisconsin – Madison, and Windows to the Universe. U.S. Bureau of Land Management provided funding for the spring 2007 event.

The Physical Science with Math Modeling Workshops

The Physical Science with Math Modeling Workshop provides 8th and 9th grade teachers of science and mathematics with education in Arizona standards-based content and instructional strategies. Teachers will achieve these goals:

- * Improve their instructional pedagogy by incorporating the modeling cycle, inquiry methods, critical and creative thinking, cooperative learning, and effective use of classroom technology in instruction,
- * Understand content in topics in scientific thinking skills, structure of matter, energy, and related skills in the Arizona Mathematics Standard,
- * Strengthen coordination between mathematics and physical science.

Anticipated student outcomes include improved understanding in geometrical and physical properties of matter, mathematics and reasoning skills such as algebraic proportions, independent & dependent variables, relation between graphs and equations, and measurement & estimations; energy and states of matter. Participants are introduced to the Modeling Method as a systematic approach to the design of curriculum and instruction. The name Modeling Instruction expresses an emphasis on making and using conceptual models of physical phenomena as central to learning and doing science. Mathematics instruction is integrated seamlessly throughout the entire course by an emphasis on mathematical modeling. PHS 534 is accepted by the ADE as a content course in general science.

MODELING WORKSHOPS for grade 8 and 9 science and math teachers:

- * PHS 534: Methods of Physical Science Teaching/Physical Science with Math Modeling

Workshop

June 11-29 (FIRST semester content) (also MTE 598); July 9-27 (SECOND semester content) (its course number is PHS 594; prerequisite is PHS 534)

* PHS 594: Modeling Workshop in 2nd semester physics content. June 11-29 (CASTLE electricity. Middle school teachers can take, too. Prerequisite is PHS 534 or PHS 530)

For 3-week courses, the Arizona Board of Regents allow only 1 course (3 credits) to be taken at a time.

All courses are 3 graduate credits. Course descriptions, line numbers, and instructions on applying to ASU (it's free) and registering for courses are at: <http://modeling.asu.edu/MNS/MNS.html> Free tuition, classroom technology, stipend for follow-up workshops. This is the LAST summer! (For 8th grade, teachers in a high-poverty school or who are out-of-field have priority)

REGISTRATION COSTS: FREE registration/tuition (and FREE housing for long-distance Arizona teachers).

Download the application at: <http://modeling.asu.edu/MNS/MNS.html>

All Washed Up: Water Resources in Southwest Arizona

A Free 8-hour Non-Credit Workshop for Middle School Teachers

Date: Part 1 on Sat., April 21 & Part 2 on Sat., April 28, 2007

Time: 8 am-12 noon both days

Location: Yuma East Wetlands Classroom in Yuma (directions below)

Presenter: Terry Page, M.S. candidate

Learn how to use the resources of the Yuma East Wetlands to teach the National and State Science Standards for middle school teachers. You'll do activities found in the GEMS unit "River Cutters", Arizona Fish and Game's "Bone Box" and a couple of "Project Wild" lessons that have been modified for a Wetlands habitat. You'll learn about Populations and Ecosystems including plants, animals, and insects of the Yuma East Wetlands, along with abiotic factors that influence population growth, such as soil and water testing. An outdoor activity will involve a nature hike to identify native and invasive plant species, including a native plant propagation activity that will benefit the re-vegetation of the Wetlands.

The Yuma East Wetlands classroom is located directly below the Old Yuma Territorial State Park. The site is located off of Highway 8 at the Giss Parkway offramp just before you reach the California State line. Turn right off the freeway, then left on Giss Parkway and look for the sign for the Territorial Prison, where you turn right up a hill, and then another right at the cemetery, which will take you down to the classroom, located directly below the cemetery.

To register for this non-credit workshop, please email <warder@u.arizona.edu>. Upon completion of the workshop, you will receive a contact hour certificate.

Summer Session I 2007 Biology Courses for Teachers at University of Arizona

BIOLOGY UPDATE 2 (BIOC 623B)

This course will focus on recent advances in the understanding of basic biology and on new applications in genetics, ecology, evolution and systematics. Weekend fieldtrips may be required.

Offered in SSI (June 4-July 5), TTh, 9-11:50 am, Koffler 510 (2 credits). Instructor: TBA Cost:

\$621.34

SECONDARY BIOLOGY LAB CURRICULA (BIOC 633)

What are the characteristics that most great instructional activities share? How can you modify an existing activity to increase student involvement, interest, and understanding? How can you make use of current events to communicate with students about the fun and complexity of doing science? And how do national and state science standards drive your curricular choices? In this three-unit class, we will explore these ideas by using and discussing exemplary curricula taken from a variety of sources. The emphasis will be for teachers to adapt classroom activities to reflect the results of research on teaching and learning in science, and to promote greater student understanding in biology. Offered in SSI (June 4-July 5), MWF 1-3:50 pm, Koffler 510 (3 units of credit). Instructor: Lisa Elfring, Ph.D. Cost: \$926.34

ASTROBIOLOGY (ASTR 508)

An introduction to the interdisciplinary study of the origin, evolution, distribution, and destiny of life in the universe designed for middle and secondary science teachers. The course uses mini-lectures augmented with collaborative group activities. No prior formal coursework in astronomy is expected. Offered in SSI (June 4-July 5), MWF 9-11:50 am, Biosciences West 237 (3 units of credit); Instructor: Stacey Jones-Willy, M.S. Cost: \$926.34

NEMATODE-MICROBE PARTNERSHIPS: EXPANDING HIGH SCHOOL AND UNDERGRADUATE BIOLOGY CURRICULA (ENTO 524)

Round worms and microbes will be considered as a model system to teach biodiversity, ecology, symbiotic interactions, molecular biology, bioinformatics, and much more. Lesson plans and exercises will emphasize activities and experimental systems that can be used easily and inexpensively in the classroom to teach basic biological principles. Offered in SSI (June 4-July 5), MW 11-11:50 am & Th 1-3:50 pm, Marley 218 (3 units of credit); Instructor: Patricia Stock, Ph.D. Cost: \$926.34

To register for any of these courses, contact Ellie Warder at (520) 621-5903 or <warder@u.arizona.edu> or visit <<http://biology.arizona.edu/sciconn>>

Galapagos Marine Ecology ECOL 496O/596O(3-6 units) Summer 2007, July 7th - August 2nd

Dr. Kevin Bonine (kebonine@u.arizona.edu) will be the 2007 instructor for this popular summer field experience. The course begins with a service project on San Cristobal Island in the local school teaching marine biology, ecology, research methodology, and English. Participants will spend about half of each day working with the local students; the remainder of the day is available for exploration and individual small-research projects. The course then moves to several of the most fascinating islands. We will visit blue-footed booby nesting sites, the giant-tortoise sanctuary, highland habitats, and the volcanoes that gave rise to the islands themselves. Highlights include snorkeling with sea lions, tide-pooling with marine iguanas, and the opportunity to scuba dive and kayak. Participants will also visit the Charles Darwin Research Station on Santa Cruz Island, watch land iguanas feeding on Santa Fe Island, and delight in the speedy antics of the Galapagos penguin on the volcanically active island of Isabela. APPLICATIONS AND INFORMATION: <http://eebweb.arizona.edu/courses/galapagos/>

The Arizona Space Grant Consortium (AZSGC) Enters Third Year Changes in Altitudes Program

The Arizona Space Grant Consortium (AZSGC) is seeking interested teachers from across Arizona to provide hands-on training, building and launching of small balloon satellites to become part of a state-wide balloon satellite program. The program will support these teachers to develop four small student teams at their home schools to design, build, and launch four small payloads

spaced over a two-year period. The program, which is administered by the Northern Arizona University NASA Space Grant program, is made possible by the Education and Public Outreach program of The University of Arizona's Phoenix Mars Lander 2007 mission. This is a 2 year commitment for the teachers, the school administrators and the Changes in Altitudes program.

If interested, please go to the following Website and download our application form. You can send it in online or by mail at the address in our letterhead at the top of this page, to the attention of Kathleen Stigmon. Our website is <http://www.spacegrant.nau.edu> and you can click on "Changes in Altitudes" to locate the application. Applications will be accepted until Friday, April 6th, at which time 5 teachers will be chosen based on their applications and support of their school. In addition, you will need to have your supervisor or principal complete the online recommendation form which can also be found at our website.

Training Workshop: The cost of the training, materials and room/board is paid for by the grant. A partial travel stipend will also be awarded. The workshop shows the selected teachers how to develop, build and ultimately launch the payload via a weather balloon. It will also show them how to train their students to re-create the payload and participate in the launch activities as well as the Balloon Satellite Program. Once the teachers are trained, they will help their students build scientific payloads that measure the physical properties of the Earth's atmosphere as a function of time during the ascent and descent of the high altitude weather balloon, such as pressure, temperature and relative humidity. The students will also imbed a photographic camera that takes photos of the Earth's surface and its atmosphere. The launches take place in the Spring and Fall/Winter of each year according to NAU's schedule. Each teacher will bring their student team to the launch and participate in the final details, the launch, the balloon chase and a closing meeting. All costs for room and board, supplies, food and transportation will be covered by NAU except for a \$60 per student participation fee that is due one month prior to the launch date. This fee helps to cover some of the travel and launch costs and can be paid through school funds, tax credit funds or by the students themselves.

Each school will have the opportunity to participate in 4 launches over the course of 2 years. This will enable them to have 16 different students in the program during this time period. We hope to reach as many students possible and ultimately hope to enable each school to establish the elements of a small weather balloon satellite program that can be sustained by the school districts at a minimal cost.

If you have any questions, please feel free to contact us at (928) 523-8067 or via email at spacegrant@nau.edu. Our Website, listed above, has further information about this program which you can access by clicking on the "Changes in Altitudes" button on the homepage. In addition, to get a first hand look at what an actual launch looks like, please visit: <http://www.nau.edu/insidenau/> and look at Show #106, segment #3 of the online TV show. You can access this by clicking on "Watch InsideNAU, the TV show" at the top of the page. This show will be the current episode until March 1st, and as of March 2nd, you will need to click on "Previous Episodes" to locate Show #106. We look forward to hearing from you and seeing how this type of program would benefit your students.

UA ToxStart internship program

The UA ToxStart internship program application is now available. Please pass this information along to any Junior or Senior that you know who might be a candidate for this great internship opportunity. If you have any questions regarding the application or the internship program, please do not hesitate to contact Marti Lindsey, Outreach Director, SWEHSC, 520-626-3692 or

lindsey@pharmacy.arizona.edu. The application packet for the BIO5 & SWEHSC sponsored KEYS Bioscience Research Internship is available at: <http://coep.pharmacy.arizona.edu>

The Effect of the Sun and Global Warming, Solar Science Workshop for Teachers, July 17-20, 2007

"The workshop will include:

- * scientific theories and evidence behind the phenomenon of global warming
- * environmental problems from different points of view
- * application of solid science to real-life conditions
- * UA research scientists who study the sun and its effect on climate
- * Activities from GEMS (Great Explorations in Math and Science)
- * Global Warming teacher's guide and kit
- * 24 hours of professional development credit. For more information contact samec@lpl.arizona.edu.

For more information, contact samec@lpl.arizona.edu. The application is available at: <http://samec.lpl.arizona.edu/k12educators/solar2007.html>

Part Time Adjunct Instructor Position Open for Summer Session I, 2007

The Department of Biochemistry and Molecular Biophysics at The University of Arizona seeks an instructor for a two-unit summer session course on ecology for middle and high school teachers. The course, Biology Update 2 (BIOC 623b), will be taught during summer session 1, June 4 - July 5, 2007, on Tuesday & Thursday mornings (9-11:50 am) on the University of Arizona main campus. Duties and Responsibilities: * The instructor will work with personnel from Biochemistry and Molecular Biophysics to develop and teach the course, whose catalog description is: This course will focus on recent advances in the understanding of basic biology and on new discoveries and applications in genetics, ecology, and evolution. * May include 2-3 required day or weekend fieldtrips. May be taken before BIOC 623a. * The course will be taught in-person during Summer I, but it may be adapted to a distance-learning format to be offered in subsequent school years. * It will be expected that course materials will be organized through the University of Arizona's course management system, D2L. * Course material should be at a level that is accessible to secondary teachers and the approaches used in the class should represent a mix of modalities, including hands-on projects, lecture/discussion, and use of the research literature. Minimum Qualifications: * Successful applicants will possess a strong background (minimum of a Master's degree) in ecology or evolutionary biology. * Experience working with secondary teachers and/or students; and prior experience in teaching. Preferred Qualifications: * Ideally, applicants will also have some experience in teaching online courses. The University of Arizona conducts pre-employment screening for all positions, which includes a criminal background check, verification of academic credentials, licenses, certifications, and work history. This position is non-security sensitive and requires a name-based criminal background check. For more information or to apply for this position, please go to: <http://www.uacareertrack.com/applicants/Central?quickFind=187078>

Educational E-Journal Links

- * Carolina Biological online tips: <http://www.carolina.com/tips/>
- * CONTINUUM (The first edition of the Governor's P-20 Council newsletter): <http://www.governor.state.az.us/P20/>
- * Education News and Research Reports: <http://www.queuenews.com/AZnews>
- * Education Week: <http://www.edweek.org/>

- * No Child Left Behind: <http://www.ed.gov/nclb/>
 - * NSTA Express: http://science.nsta.org/nstaexpress/nstaexpress_2006_10_23.htm
 - * NSTA Science Class (High School Edition): http://science.nsta.org/enewsletter/2006-11/member_high.htm
 - * NSTA Web Seminars: http://institute.nsta.org/web_seminars.asp
 - * Physics Teacher Online: <http://phy.ilstu.edu/jpteo/>
 - * Teacher Magazine: <http://www.teachermagazine.org>
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This information was sent to approximately 3000 science and mathematics educators:
<http://samec.lpl.arizona.edu/resources/e-news.html>

The SAMEC e-newsletter is provided to you by
The University of Arizona Science and Mathematics Education Center,
Lunar and Planetary Laboratory, <http://samec.lpl.arizona.edu>

To subscribe to the SAMEC e-news listserve, send email to listserv@listserv.arizona.edu with the following as the only line in the body of the message:
subscribe SAMECK12 Firstname Lastname (Substitute your first name for Firstname and your last name for Lastname).

If you do not wish to receive SAMEC e-news, send email to listserv@listserv.arizona.edu with the following as the only line in the body of the message:
unsubscribe SAMEC