

Nebraska Science News



Nebraska Academy of Sciences



Nebraska Association of Teachers of Science

Serving Scientists and Science Educators Across the State of Nebraska

Fall, 2016-2017

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FROM THE NAS PRESIDENTS' DESK

Fall is an exciting season for scientists and educators. Many of you will be heading back to classes and preparing students for the solar eclipse in August of 2017. I can remember teaching in the 80's when I covered the classroom windows' with black paper and put a pinhole in the paper and videotaped the solar eclipse on a tabletop. Boy, has technology changed.

It's been a few months since my last article on the Zika virus and things have changed. An outbreak of locally transmitted Zika virus in Florida has led to the infection of 14 people and a massive effort by local and state health officials to control it. They remain concerned about the Zika virus and the chance, however unlikely, that it becomes a permanent problem in the U.S. Researchers need a response plan ready and flexible, as things may not occur as we expect, therefore, researchers are working to develop a Zika vaccine.

Three different ways to attack the virus are being tested. Three vaccines offer complete protection against Zika virus in rhesus monkeys. The results are the latest step in creating a Zika vaccine that's safe and effective for humans. One vaccine, made with a purified, inactivated form of the virus-designated PIV-helped rhesus monkeys fend off infection from both a Zika strain from Brazil and one circulating in Puerto Rico. A second DNA- based vaccine that uses snippets of Zika's genetic material to rev up the immune system was tested against a Brazilian strain. So was a third type of vaccine that relies on a virus called adenovirus to carry Zika genes into the monkeys' bodies. After infection with Zika virus, vaccinated monkeys had no detectible Zika in the blood. In contrast,

in unvaccinated monkeys, Zika blood levels climbed less than a day after infection. Researchers found similar results in urine and other bodily fluids

In recent days, the U.S. government and Inovio Pharmaceuticals have both started human safety trials for two other DNA-based candidates. DNA-based vaccines have never before been licensed for use in humans. The technique to make a PIV vaccine goes back to Jonas Salk and polio. Researchers grow Zika in a lab, kill it and then purify it. It's a classic way to make a vaccine.

Human testing of the PIV vaccine will start in October. Information "Zika Vaccines Work in Rhesus Monkeys" by Meghan Rosen was published in *ScienceNews*.

Randall Lienemann, NAS President
Acting NJAS President, Hildreth NE

GREETINGS FROM THE NATS PRESIDENT

Message from the NATS President – Lee Brogie

This may be one of the most exciting events of the year The first day of school! Teachers and students are rested and ready for another year of learning and teaching. For science teachers, this most likely will be the last year for the 2010 Nebraska Science Standards, so now is a great time to get ready for the next set of revised science standards.

Currently, under the direction of Sara Cooper, Nebraska's Science Education Specialist at NDE, the standards revision process is underway. The revisions are expected to be completed Fall 2017 with a 2018-2019

school year implementation date. So what can we expect?

In May 2013, the Next Generation Science Standards (NGSS) was released. (I affectionately call this the National Guide for Success in Science.) Based on the National Research Council's Framework for K-12 Science Education, NGSS was developed to prepare students for college and careers. As of February 2016, 14 states have adopted NGSS including the Midwest states of Kansas, Iowa, and Illinois. Missouri is working to adopt standards that closely resemble NGSS and I expect that Nebraska will do the same.



It's not too early to begin getting to know the coming trend in science standards by familiarizing yourself with the Next Generation Science Standards. The NGSS website is a great place to start. The website provides tools and resources for teachers as well as the complete set of standards (by Disciplinary Core Ideas and topic) and its appendices.



<http://www.nextgenscience.org/>

Here is a brief overview of how NGSS is structured. NGSS is organized by grade level for kindergarten through grade five, and as grade-banded at the middle school (6-8) and high school (9-12) levels. The standards are grouped into four domains: earth and space sciences, life sciences, physical sciences, and engineering, technology, and applications of science. Domains are divided into topics. For each, topic standards, now called performance expectations (PE's), are listed. PE's state what students should be able to do at the end of instruction. A guide detailing how to read the standards charts developed by NGSS can be found at http://www.nextgenscience.org/sites/default/files/System%20Architecture3_2_0.png



NGSS utilizes three-dimensional learning to support the PE's; Science and Engineering Practices, Disciplinary Core Ideas (DCI), and Cross-Cutting Concepts. Science and Engineering Practices are what scientists do to investigate the natural world and what engineers do to design and build systems. These practices explain and expand what is meant by inquiry in science and includes the cognitive, social, and physical practices required for true inquiry to take place. Disciplinary Core Ideas focus

on the science content; what students should know. Crosscutting concepts are the central ideas that exist throughout science and allow students to explore the connections between the four domains. They include: cause and effect; energy and matter; patterns, similarity, and diversity; proportion and quantity; stability and change; structure and function; and systems and system models. The NGSS three-dimensional learning model promotes learning in an environment in which students as scientists and/or engineers learn science concepts at increasing levels of complexity. If you want to learn more about three-dimensional learning be sure to attend NSTA's President-Elect David Crowther's session at our 2016 NATS Fall Conference.

I want to encourage you to take a look at NGSS, find topics that are similar to what you are currently teaching, compare them to the 2010 Nebraska Science Standards and to your curriculum to identify similarities and differences. I am certain that you will find validation for what you are doing in your classrooms, especially in the area of Science and Engineering Practices. Critical thinking and problem-solving are embedded throughout NGSS as students use scientific and engineering practices to construct explanations and design solutions based on the your explorations!

On a personal note, on May 24, 2016 I officially retired. I was blessed with an amazing career that started in Lincoln and ended in Wayne. Serving as your president in my final year of teaching was an amazing honor. Thank you! I am looking forward to the next chapter(s) in my journey and hope our paths will continue to cross.

Lee Brogie, NATS President

2016 NATS FALL CONFERENCE HIGHLIGHTS-ECLIPSING SCIENCE IN NEBRASKA

Some great speakers have been retained for the 2016 NATS Fall Conference. Details are included in the newsletter on pages 16-26.

- Todd Hutner-Asst Director for Teacher Education in the Center for STEM Education
- Jeff Goldstein – National Center for Earth and Space Science Education, Center Director
- Todd Young – Physics and Astronomy, Wayne State College
- David Crowther, NSTA President-Elect

- Ron Lamb – Pattonville HS, Colorado, incorporating Infographics into your classroom
- Michael Sibbernsen – STAR party
- Daniel Glomski, Mad Scientist, Edgerton Explorit Center



NJAS News

Everybody starts out as a scientist and everyone uses science every day. The Nebraska Junior Academy of Science is designed to promote science, technology, engineering and mathematics in Nebraska by providing incentives for students to apply creativity and critical thought to solutions of science. It offers an opportunity for students to meet, exchange ideas, and discuss career possibilities with scientists and engineers from colleges and industries. This new perspective can inspire students in ways traditional science classroom learning can't. We all have a part in science, so get involved, be a mentor, share your expertise and volunteer your time to promote Nebraska science.

The NJAS State science research competition was last April and nine Nebraska students qualified for AJAS conference to be held in Boston February 15th-17, 2017. AJAS is America's only honor research society for high school scientists. Each state's Academy of Science selects the premier high school researchers from their state to be lifetime fellows in AJAS. Each year, AJAS hosts a conference to honor these students and to induct them as fellows into AJAS. The conference is always held in conjunction with the American Association for the Advancement of Science's (AAAS).

Randall Lienemann, Acting NJAS President/State Coordinator

ACADEMY WEB SITE UPDATES

The NAS/NATS/NJAS web site is adding new content all the time.

Our newsletter is available to members and can be downloaded saving money and resources. The Transactions and the Program and Proceedings has been converted to on-line digital copy available through UNL Digital Commons as well as EBSCO Publishing. Publishing digitally allows us to upload research articles as they are submitted resulting in more timely distribution of research information. For information about accessing or submitting Transactions

articles go to our website: www.neacadsci.org. Click on NEWS; then click on Publications (found on the left side bar). Proceedings articles will continue to be submitted through section chairs. Don't forget to "friend" the NATS Facebook as well.

The Nebraska Science News is a publication of the Nebraska Academy of Sciences, a private foundation associated with the American Association for the Advancement of Science.
 NAS President: Randall Lienemann
 NATS President: Lee Brogie
 NJAS Acting President: Randall Lienemann
 NAS Executive Secretary: Cecelia Dorn
 Nebr. Sci. News Editor: Cecelia Dorn
 Membership information can be obtained by writing to P.O. Box 880339, Lincoln, NE 68588-0339
 E-mail: nebacad@unl.edu Telephone: (402) 472-2644
 Website: www.neacadsci.org Donations are tax deductible.

PIE GRANTS UPDATE

The Nebraska Academy of Sciences (NAS) received 20 applications for the second quarter. Grants were awarded to the following: Lancaster County Weed Control Authority, PlayCleanGo Education and Outreach on Invasive Plants; Willa Cather Foundation, Prairie Pollinators Workshop; The Nebraska State Fair, Interactive Sustainability Display; The Groundwater Foundation, Groundwater Education Gateway; Keep Chadron Beautiful, Chadron Recycling Education; and Omaha Children's Museum, Pirates and Mermaids: Adventure to Creature Cove.

NAS received eleven applications for the third quarter of 2016. Applications were received from Central Platte NRD, Husker Harvest Days Native Grassland Awareness Project; Lower Platte South NRD, Lower Platte River Summit; WasteCap Nebraska, 2016 Mission to Zero: Annual Recognition and Zero Waste Training; Saving Grace Perishable Food Rescue, INC., Perishable Food Pipeline; NE Section-Society for Range Management, Capitalizing on Range Mgt Opportunities Workshop and Tour; Nebraska Statewide Arboretum, Young Lecture: Between Earth and Sky; Omaha-Council Bluffs Metro Area Planning, Little Steps Big Impact School Ozone Monitoring Project; Platte River Whooping Crane Maintenance, Crane Trust Prairie Greenhouse Build; Wachiska Audubon Society-Ed Comm, Prairie Discovery Day Project; Prescribed Burn Task Force, Nebraska Prescribed Burn Safety Education and Outreach; and Keep Omaha Beautiful, Promoting and Diversifying World O! Water. A total of \$13,120 was awarded to the Central Platte NRD, WasteCap Nebraska, NE Section-Society for Range Management, Omaha Council Bluffs Metro Area Planning, and Keep Omaha Beautiful.



Nebraska
Green
Schools
Coming to a
school near you!

The Nebraska Environmental Public Information and Education MiniGrant Program awards MiniGrants of up to \$3,000 each, to support the presentation and dissemination of information and perspectives that will stimulate enhanced environmental stewardship in any category eligible for Nebraska Environmental Trust (NET) funding. These categories are habitat, surface and ground water, waste management, air quality, and soil management. The grant expands dialogue on important current conservation topics and provides information on emerging or highly useful conservation methods. All Nebraska individuals, private organizations, and public entities are eligible to apply for these funds.

The Nebraska Legislature created the Nebraska Environmental Trust in 1992. Using revenue from the Nebraska Lottery, the Trust has provided over \$250 million in grants to over 1,700 projects across the state. Anyone – citizens, organizations, communities, farmers and businesses – can apply for funding to protect habitat, improve water quality and establish recycling programs in Nebraska. The Nebraska Environmental Trust works to preserve, protect and restore our natural resources for future generations. <http://www.environmentaltrust.org/>

Fourth quarter 2016 applications are due October 7, 2016.

Grant forms and information can be found on our website, www.neacadsci.org. Click on NAS and then click on Grants and Scholarships.



NATS FALL CONFERENCE GENERAL REGISTRATION

Consider registering early for the NATS Fall Conference. We will be at Camp Calvin Crest in Fremont again this year from September 22 – September 24. You can register several different ways, use the form included in this newsletter and mail your payment in or include your billing information. Use your credit card and mail or fax (402-472-8899) your form. You can also register on line using our Events page and pay using PayPal or indicate that you would like to have your school invoiced. **Our lodge housing is almost full, cabins are still available.**

[NATS 2016 Fall Conference On-line Registration Link](#)

Nebraska Green Schools will be launched statewide for the 2016-2017 school year. Get students discovering and investigating energy, water, the school site, environmental quality, and waste and recycling. Compete in challenges, earn awards, and become a certified Nebraska Green School! For more information, visit <http://nppd.com/greenschools>.

Nebraska Green Schools is a partnership between the Nebraska Department of Education and the Nebraska Public Power District.



Youth Incentive Award

The Coleopterists Society, an international organization of professionals and hobbyists interested in the study of beetles, has established a program to recognize young people studying beetles. The Society has pledged to provide up to \$600 each year for the Youth Incentive Award Program. Each of the two awards (Junior and Senior) will receive a monetary grant of \$200 and \$400, respectively, and a matching equipment credit from the [BioQuip Products](#) catalog for \$200 (Junior Award) and \$400 (Senior Award). In addition to monetary and BioQuip grants, award recipients will receive a one year subscription to the society journal, The Coleopterists Bulletin. **This is for students of grades 7-12 only.**

Additional details and application forms for The Coleopterists Society Youth Incentive Award Program can be obtained from: Dr. David G. Furth; Entomology, NHB, MRC 165; P.O. Box 37012; Smithsonian Institution; Washington, D. C. 20013-7012 (phone: 202-633-0990, FAX: 202-786-2894, email: furthd@si.edu).

Applications for this year must be submitted by **1 September 2016**.

[Download the application form.](#)

HIGH SCHOOL AND COLLEGIATE SCHOLARSHIP NOTIFICATION

It's time again to think about scholarships for the coming year. The Nebraska Academy of Sciences offers six scholarships for high school seniors varying from \$100 to \$1000. Two scholarships are also available to college juniors or seniors majoring in a natural science. The collegiate scholarship is \$3000, ½ paid at the beginning of each semester. High school scholarship application deadline is March 1; the collegiate deadline is February 1.

Please consider applying for a scholarship. Information is available on the Academy website: <http://www.neacadsci.org>.

Click on NAS and then click on the Grants and Scholarships link on the left side of the screen. You can also contact the Academy office for information at 402/472-2644 or email: nebacad@unl.edu.

FALL CONFERENCE SCHOLARSHIPS

Each fall, the Nebraska Association of Teachers of Science offers scholarships to attend our fall conference to pre-service and first year teachers. We would like to encourage all pre-service teachers, current student teachers, and teachers in their first through third year of teaching to apply. A detailed letter and a copy of the application has been sent to universities and ESUs. For more information regarding this opportunity or questions, please contact Jodi Bahr at jbahr@harvardcardinals.org. We hope to see many new faces at the conference this year. Scholarship forms are available on the NATS home page.

DATES TO REMEMBER:

NATS FC Conference early registration deadline
September 2, 2016
NATS Fall Conference – September 22 – 24, 2016
PIE Grant 4th Quar Application Deadline October 7, 2016
PIE Grant 1st Quar App Deadline – January 6, 2017
NAS Abstract Submission Deadline – February 6, 2017
Collegiate Scholarship Deadline – February 1, 2017
High School Scholarship Deadline – March 1, 2017
PIE Grant 2nd Quar App Deadline – April 14, 2017
NJAS State Competition – April 20, 2017
NAS Annual Meeting – April 21, 2017
State Science Olympiad – April 22, 2017

CHOOSING A SECTION FOR YOUR ANNUAL MEETING ABSTRACT

Each year at the annual meeting of the Nebraska Academy of Sciences concurrent sessions are held in the biosciences. They are:

- Collegiate Academy (CA) Biology and
- Senior Academy (SA) Biological and Medical Sciences sections.

Similarly, concurrent sessions are held in chemistry and physics. They are

- Collegiate Academy Chemistry/Physics,
- Senior Academy General Chemistry, and
- Senior Academy General Physics sections.

Generally, CA sections are intended to showcase presentations by undergraduate students for undergraduate students. SA sections, on the other hand, are intended for presentations by graduate students, professional scientists in industry, government, and academe, and our membership's serious citizen scientists and hobbyists to their peers. Well-prepared undergraduates who value the discussion and feedback that a presentation to a SA section provides are encouraged participate in SA sections.

To help undergraduate students uncertain as to which section will better showcase their work, the Executive Committee of the Nebraska Academy of Sciences provides a checklist, see page 7 and 8. A majority of responses offering guidance "CA" and "Ca/SA" suggest the presentation will be better received in a Collegiate section; likewise, a majority of responses with the guidance of "SA" and "CA/SA" may be better received in a senior section.



THE NEBRASKA ACADEMY OF SCIENCES, INC.
(Founded January 30, 1880)
127th ANNUAL MEETING TO BE HELD
at
NEBRASKA WESLEYAN UNIVERSITY
50TH and ST. PAUL, LINCOLN, NEBRASKA

FRIDAY, APRIL 21st, 2017

"Call for Papers"

ABSTRACTS, FORM, AND FEES ARE DUE TO SECTION CHAIRPERSONS
FEBRUARY 6, 2017

Individuals are invited to submit an abstract of original research or synthesis of primary research/literature for consideration by one of the sections for inclusion in the Program of the Annual Meeting of the Nebraska Academy of Sciences. You may also complete your presenter registration on line using the Events tab on the NAS website. Be advised if your abstract contains any special characters or formulas you may be requested to submit a hard copy as well.

Annual Meeting Presenters may also want to consider submitting their complete research articles for review and possible publication in the Transactions of the Nebraska Academy of Sciences. Papers from all sections are eligible. Contact the Academy office for publication information.

SECTION CHAIRPERSONS WILL FORWARD ALL DOCUMENTS TO THE ACADEMY, nebacad@unl.edu
BY FEBRUARY 26th. A HARD COPY OF THE ABSTRACT MUST BE INCLUDED WITH THE
REGISTRATION FORM. FORMATTING INSTRUCTIONS ARE AVAILABLE ONLINE AT

<http://www.neacadsci.org>,

Click on NAS, then Information

or contact

THE NEBRASKA ACADEMY OF SCIENCES
302 MORRILL HALL, 14TH AND 'U' STREETS,
LINCOLN, NE 68588-0339
TELEPHONE (402) 472-2644

1. EACH ABSTRACT MUST BE ACCOMPANIED BY A \$70.00 REGISTRATION FEE (\$15.00 FOR STUDENTS—COPY OF VALID STUDENT ID MUST BE ENCLOSED) FOR THE PERSON PRESENTING THE PAPER. PLEASE COMPLETE CONTACT INFORMATION ON THE REGISTRATION FORM ACCURATELY AND LEGIBLY. FORM IS AVAILABLE ON OUR WEBSITE: <http://www.neacadsci.org>
Click on NAS, then Click on Information

2. MAKE CHECKS PAYABLE TO THE NEBRASKA ACADEMY OF SCIENCES.

3. AUTHORS SUBMITTING MORE THAN ONE ABSTRACT SHOULD PAY ONLY ONCE.

Is the work	Yes	Guidance
Original?		CA / SA
A review?		CA
A group presentation?		CA
Significant and timely?		CA / SA
Of broad appeal?		CA
Of narrow appeal?		SA
Publishable or leading to publication?		CA / SA
Novel or noteworthy?		CA / SA
A capstone experience associated with the presenter's major?		CA
Is the presenter		
Comfortable discussing the work with others?		SA
Comfortable thinking on her/his feet?		SA
Experienced in oral presentation of her/his work to other scientists?		SA

Able to field questions without deferring to her/his advisor?		SA
A novice researcher?		CA
Continuously and actively engaged in the work to be presented?		SA
Will the presentation		
Target other undergraduates?		CA
Target other active disciplinary investigators?		SA

NAS ANNUAL MEETING, APRIL 21, 2017
NEBRASKA ACADEMY OF SCIENCES ABSTRACT INSTRUCTIONS ABSTRACTS
DUE FEBRUARY 6, 2017 TO YOUR SECTION CHAIR

Email or MAIL TO YOUR SECTION CHAIRPERSON or Complete the on-line presenter registration form

1. *YOUR ABSTRACT, INCLUDE 1 HARD COPY OR WORD AND PDF ELECTRONIC FILES (so editor can proof scientific notation)*
2. *COMPLETED PRESENTERS REGISTRATION FORM & FEE*

GENERAL INSTRUCTIONS

DEADLINES: ABSTRACTS, REGISTRATION FORM AND FEES must be received by the Section Chairperson(s) on or before **FEBRUARY 6, 2017**. Late submissions may not appear in the printed program.

PREPARING THE ABSTRACT: Abstracts should be informative condensations of the essential parts of the paper; not merely recitation of the subjects to be covered in the presentation. Since *the abstracts receive international distribution by our utilization of abstracting services and a journal exchange program, please proofread your work carefully.*

Please use Times New Roman, 12 pt. Type single-spaced. Margins should be Top 0.5", Bottom 0.5", Left 1.0", and Right 0.5".

Type the TITLE in CAPITAL LETTERS. Type Name, Department, Institution, City and Address on the line immediately below the Title, indenting 5 spaces (one tab). Leave exactly one line between this material and the BODY of the Abstract. (See sample below.)

CHARACTERIZATION OF THE SITE OF NORA VIRUS REPLICATION IN *DROSOPHILA MELANOGASTER*

Justin Buchanan, Brad Ericson, Darby Carlson, and Kimberly Carlson, Department of Biology,
University of Nebraska at Kearney, NE 68849

Nora virus is a picorna-like virus that infects *Drosophila melanogaster*, but displays no apparent
pathogenicity. The mode of

Please save your abstract in Microsoft Word and submit it (by email, CD or jump drive), together, with one hard copy of the abstract (or a PDF file), registration form and fee **TO YOUR SECTION CHAIRPERSON**.

PLEASE PROOFREAD YOUR WORK!!

PLEASE NOTE: Each abstract is to be accompanied by a completed registration form and \$70.00 registration fee for the PRIMARY PRESENTER; (includes membership). If there are multiple authors, registration fees are required for only those who attend the Annual Meeting. If the presenter is a student who encloses a copy of his/her current I.D. with the registration, the fee is \$15.00. (If an individual is presenting more than one paper, only one registration form and fee is required.)

**PRESENTER'S REGISTRATION/SECTION FORM NEBRASKA ACADEMY OF SCIENCES
DUE FEBRUARY 6, 2017 TO SECTION CHAIR
SEND REGISTRATION FORM, PAYMENT AND ABSTRACT TO YOUR SECTION CHAIRPERSON.
REGISTRATION IS REQUIRED OF ALL WHO PRESENT PAPERS OR ATTEND/CHAIR ANY SESSION**

REGISTRATION Please print or write legibly

Name _____

Mailing Address _____

Institution _____

E-mail address: _____

Phone Number: _____

Speaker: _____

Time Required: 5-10 min. _____ 10-15 min. _____ 15-20 min. _____

Section in which paper is to be presented (Check one)

____ AERONAUTICS & SPACE SCIENCE – mlucas@unomaha.edu

____ ANTHROPOLOGY – <mailto:wbabchuk1@unl.edu>

____ APPLIED SCIENCE & TECHNOLOGY – maettel1@wsc.edu

____ BIOLOGICAL & MEDICAL SCIENCES –

annemarieshibata@creighton.edu

CHEMISTRY & PHYSICS

____ CHEMISTRY SECTION – jdarr@unomaha.edu

____ PHYSICS SECTION – addavis1@wsc.edu

Plan your AUDIO VISUAL NEEDS carefully and indicate the LENGTH OF TIME REQUIRED for your presentation by circling the appropriate item above. The allotted time is at the discretion of the Section Chairperson, and if a special time slot is needed, be sure to indicate your needs. This is essential for accurate scheduling.

Equipment Provided: PP equipment. Other equipment: Confer w/ your section chair, any special set-up must be completed before the session begins, no additional time between speakers is allotted for set-up.

402 472-2644 voice 402-472-8899 fax nebacad@unl.edu

MEMBERSHIP

Student \$10.00 _____
(with copy of student ID)

REGISTRATION

General & Presenter Registration \$70.00 _____
(dues included)

Student Presenter Registration \$15.00 _____

Lunch \$ 7.95 _____

Check _____ Cash _____ Credit Card: Visa _____ MC _____ Discover _____

Credit Card Name _____

Credit Card Number _____ 3 digit code _____

Credit Card Address _____ EXP Date _____

TOTAL REGISTRATION + MEMBERSHIP \$ _____

____ EARTH SCIENCE – <mailto:jbalmat@csc.edu>

____ ENVIRONMENTAL SCIENCES – bahayfo1@wsc.edu

____ HISTORY & PHILOSOPHY OF SCIENCE – riwebb@ucollege.edu

____ TEACHING OF SCIENCE & MATHEMATICS – josef.kren@bryanlgh.org

COLLEGIATE ACADEMY

____ BIOLOGY SECTION – aprokupe@nebrwesleyan.edu

____ CHEMISTRY/PHYSICS SECTION – dat@nebrwesleyan.edu

Questions ??? Contact:

Nebraska Academy of Sciences

PO Box 880339

Lincoln, NE 68588-0339



NATS 2016 Fall Conference Highlights

September 22-24

Camp Calvin Crest - Fremont, Nebraska

What does the 2016 NATS Fall Conference have to offer you? We have a great lineup of speakers and presenters ready to share their wealth of knowledge.

This year's theme is "Eclipsing Science in Nebraska". Nebraska will have a great view of the 2017 Solar Eclipse, and NATS is doing its part to educate teachers about that event with a presentation from Dr. Todd Young, a professor at Wayne State.

Nebraska is also in the beginning phases of adopting new standards. With the changes that the Next Generation Science Standards has brought to the world of science education, NATS feels it is important that you hear from some of the experts. Knowledgeable speakers such as Todd Hutner from the Argument-Driven Inquiry Team will explain the importance of activity-before-content, discuss new ideas in science education: 3D Instruction, and Argument-Driven Inquiry as a way to implement 3D learning.

Dr. Jeff Goldstein will be presenting: "Human Exploration - It's Not a Book of Knowledge, It's a Journey".

Every parent remembers that magical time when our children first began to speak, that moment marking the beginning of unending questions. In our children, we can see our humanity - our innate curiosity - and recognize the obvious: that we are born to explore!

Science and more generally STEM, in all its seeming complexity, is nothing but a means to organize curiosity. A way to empower oneself to ask a question, and to hone the art that allows navigation through the noise of the universe around us in quest of an answer. It is an emotional, joyful, and wondrous journey that hopefully allows the traveler to pull back the veil of nature just a little, see how she operates, and celebrate the accomplishment.

STEM education is no different. It is the means by which we immerse our children in the act of journey by letting them do science, and acknowledging it is their journey. As teachers, our sweet reward is seeing the joys of learning wash over them. And as teachers, we are charged with nothing less than patiently and gently launching the explorations of an entire generation.

NATS will once again offer a Friday night star party. Michael Sibbersen is a wealth of knowledge, and I learn something new from him every year at the star party. In addition to the star party, Daniel Glomski, the Mad Scientist, from Edgerton Explorit Center will set up its new portable planetarium featuring full-dome video technology, and it will be an event you won't want to miss out on.

For the second year, NATS will host Elementary Teacher Mini-Conference on Saturday. We have a great lineup for you elementary teachers, and I know that you will all walk away with new resources, tools, and inspiration.

We look forward to seeing you all at the conference, to learning together, to strengthening our professional learning network, and to inspiring one another.

Thursday Maiben Lecture

Todd Hutner

Argument-Driven Inquiry Team



<http://www.argumentdriveninquiry.com/>

Todd Hutner is currently an Assistant Director for Teacher Education in the Center for STEM Education. Todd received his Ph.D. in Curriculum and Instruction from The University of Texas at Austin, with a concentration in science education and education policy. During his graduate work at UT-Austin, Todd worked with pre-service science teachers in the UTeach program at the University of Texas. Prior to pursuing his doctorate, Todd was a high school science teacher in both Texas and Florida, having taught: AP Physics B, Physics I, Chemistry, Earth Science and Astronomy. The schools Todd worked at in both Texas and Florida served culturally and linguistically diverse students, providing Todd with a unique outlook on teaching science and the role of labs as part of the science curriculum. Todd received his B.S. and M.S. from the Florida State University, where he met Victor Sampson and began his relationship with the Argument-Driven Inquiry Team.

Friday Keynote

Jeff Goldstein, Ph.D.

Center Director, National Center for Earth and Space Science Education (NCESSSE)



Dr. Jeff Goldstein is a nationally recognized science educator, and planetary scientist, who has dedicated his career to the public understanding of science and the joys of learning. **Twitter:** <http://twitter.com/doctorjeff>
LinkedIn: <http://www.linkedin.com/in/drjeff> **Email:** jeffgoldstein@ncesse.org

As NCESSSE Center Director, he is responsible for overseeing the creation and delivery of national science education initiatives with a focus on earth and space. These include programs for schools, families, and the public; professional development for grade K-12 educators; and exhibitions for museums and science centers. Initiatives are meant to provide a window on the nature of science and the lives of modern-day explorers, with special emphasis on not just what is known about Earth and space but how it has come to be known. Programs embrace a [Learning Community Model](#) for science education.

Jeff is a blogger at the [Huffington Post](#) and writes *Blog on the Universe*. A collection of his essays about education, science and STEM education, climate change, space exploration, and the universe can be found [here](#).

Jeff's planetary science research includes the development of techniques for measuring global winds on other planets using large telescopes on Earth. He developed computer models for the circulation of planetary atmospheres (models of global winds), and built ultra-stable CO₂ laser systems for infrared heterodyne spectrometers. The laser systems enabled these spectrometers to measure gentle breezes of 2 mph (1 meter/sec) on planets tens of millions of miles away. His research has produced the first direct measurement of the global winds above the clouds on Venus, and the first measurement of the global winds on Mars.

Saturday Morning Keynote

Dr. Todd Young is a professor of physics and astronomy at Wayne State College. He is also the director of the Fred G. Dale Planetarium on WSC's campus.

Dr. Young's research interests include variable stars, cosmology, and science technical, non-fiction and fiction writing. His teaching interests are physics and astronomy education and outreach.

Dr. Young is a member of the Great Plains Planetarium Association, the International Planetarium Society, the Western Alliance Planetarium Association and the Nebraska Academy of Science.

He received the George Rebeusdorf Teaching Excellence Award in 2008. In the supporting materials for his nomination for the award, it was noted that Young “constantly stresses the importance of physics as a tool for learning about the world around us” and continuously explores and investigates methods to better educate his students. He has applied this philosophy outside of Wayne State by helping secure two grants aimed at improving the content knowledge and teaching styles of practicing secondary teachers.

Dr. Young serves as the coordinator of the Nebraska Science Bowl and the Rural Health Opportunities Program (RHOP) at WSC. He is also the president of the Majestic Theater Advisory Board.

Special Guest

Dr. David T. Crowther, NSTA President-Elect, 2016–2017



Dr. David T. Crowther is the president-elect of the National Science Teachers Association (NSTA). He began serving his one-year term on June 1, 2016, and will assume the office of president on June 1, 2017. Crowther is currently a professor of science education and the executive director of the Raggio Research Center for STEM Education at the University of Nevada, Reno (UNR).

Crowther brings years of leadership and teaching experience to NSTA through his work as a classroom teacher, college professor, director, journal editor, and author. In addition to having taught science at the elementary and middle levels for 5 years. Crowther also has 23 years of teaching experience at the university level, teaching science methods to undergraduate students; general biology to education majors; and a variety of courses in curriculum, science education, and research to graduate students. He is also the associate editor of the *Journal of Science Teacher Education* and previously served as editor of CESI Science and associate editor of the *Electronic Journal of Science Education*. Crowther has also served as president of the Nevada State Science Teachers Association (NSSTA) and the Council of Elementary Science International (CESI), was on the board of directors for the Association of Science Teacher Educators (ASTE), and was chairman of the board for Bailey Charter Elementary School in Reno, Nevada. Crowther is currently the chairman of the board of directors for the Nevada STEM Coalition and serves on the board of directors and the executive committee for the Terry Lee Wells Nevada Discovery Museum.

Rob Lamb



email: rob@connectedlearningstl.org

Rob Lamb is in his 14th year teaching science and has spent the past 12 teaching chemistry at Pattonville High School. He is a big proponent of authentic assessment strategies and technology in the classroom. Ideas he developed led to his involvement in an exploratory grant from the National Science Foundation under the cyberlearning designation. This grant focuses on the creation and use of infographics in the classroom to increase Science Data Literacy. This exploratory grant was so successful that Lamb is currently working on a larger second grant teaching other teachers in Colorado how to incorporate Infographics into their classrooms. Rob has spoken at the National Science Teacher Conference 5 times, EdcampKC, EdcampSTL, and in several school settings. He has been asked to speak regionally on the “flipped” classroom model. In district wide professional development, he has been a technology leader as well as led sessions on social justice. Rob participated in the highly selective Discovery Siemens STEM Institute and has since been selected as a Discovery Education Program Champion where he serves as a teacher liaison for programs and competitions. In 2016, Rob received the Robert E. Yager Excellence in Teaching Award and was selected as the Yager Scholar. He received a Peabody Energy Leader In Education Award and the Young Educator of the Year award from the Educational Technology Association of St. Louis, and the St. Louis Regional American Chemical Society Educator of the Year Award. Rob received his M.Ed in Secondary Education from the University of Missouri-St. Louis and his BS in Biology from Bradley University. Rob has coached track and field at PHS for the past 12 years, teaches for the Gifted Resource Council Summer Camp, and is a volunteer referee for the FIRST Robotics Competition. He is also the treasurer and one of the founding members of Connected Learning STL, a 501-C3 Non-profit run by volunteer educators that creates high quality professional development. This includes the world’s largest recorded edcamp to date, as well as 14 additional events this year.

Other Attractions

- Thursday afternoon workshops
- Steak Fry
- Silent Auction
- Friday afternoon Unconference - get what you need from the 2016 NATS Conference
- Friday Evening Star Party - hosted by Michael Sibbersen
- Friday Evening Planetarium Show - hosted by Daniel Glomski, Mad Scientist, Edgerton Explorit Center
- Saturday - Elementary Teacher Mini-Conference

Photocopy this form
as needed



Please TYPE or Print
Legibly in INK

This conference is partially supported by NSEA and NSTA
<http://www.neacadsci.org/nats/Conferences>

Early Registration, 2016 Conference Dates are Sept 22- Sept 24

ECLIPSING SCIENCE IN NEBRASKA

Register on line at www.neacadsci.org/ Click on Events

Name _____			School _____ ESU _____		
Home Address _____			School Address _____		
City _____		State _____	City _____		State _____
Zip _____		Zip _____		Zip _____	
Email _____		School Ph _____		Home Ph _____	

Teaching Assignment Elementary Middle/JR High Senior High College Pre-service

If you received any science teaching awards between November 2015 and September 2016 please list _____

May we use pictures of you taken at Fall Conference in our newsletter, on our website or in publications to promote NATS? Yes No

We would like to forward you information about science opportunities, grants, conferences, camps via email unless you decline. No

**CONFERENCE REGISTRATION
(Postmarked or on line/email by September 2)**

- \$125 Includes conference & NAS/NATS Memberships
- \$70 Saturday only conference & NAS/NATS Membership
- \$55 Pre-Service Teacher, Student, or Non-teaching spouse

**LATE REGISTRATION
(On-site or after September 2)**

- \$150 Includes conference & NAS/NATS Memberships
- \$80 Saturday only conference & NAS/NATS Membership
- \$65 Pre-Service Teacher, Student or Non-teaching spouse

WORKSHOP REGISTRATION FOR THURSDAY, SEPTEMBER 21st to be posted in August

ACCOMMODATIONS – NATS is only providing lodging at Camp Calvin Crest. Hotel arrangements are on your own!!!

Roommates must submit together!

Camp space is limited, so register early. Camp space is assigned on first come, first reserved basis.

LODGE: Bedding and towels provided.

CABINS: Bring your own bedding and towels.

Hotel arrangements by NATS are no longer an option; you must make your own payment and reservations for a hotel.

**Staying 2 nights? The BEST DEAL
INCLUDES ALL LODGING AND MEALS**

- Lodge \$165 (Bedding and Towels Included)
- Cabin \$ 135 (Bedding and Towels Included)
- Cabin \$ 115 (Bring Your Bedding And Towels)

- Thursday Night Lodge \$ 55
- Thursday Night Cabin \$ 40
- Thursday Night Cabin \$ 30

**One-night LODGING ONLY
(CHECK THE LODGING YOU WILL NEED)**

- Friday Night Lodge \$ 55
- Friday Night Cabin \$ 40
- Friday Night Cabin \$ 30

MEALS ONLY (CHECK THE MEALS YOU WILL NEED)

- Thursday Steak Fry \$15.00
- Friday Dinner \$11.00

- Friday Breakfast \$8.00
- Saturday Breakfast \$8.00

- Friday Lunch \$9.00
- Saturday Lunch \$9.00

Complementary T-Shirts available on site: Small _____ Medium _____ Large _____ Extra Large _____ 2x1 _____ 3x1 _____

Return forms to: nebacad@unl.edu, or NATS, 302 Morrill Hall, 14th and U Street, Lincoln, NE 68588-0339, fax 402-472-8899, questions 402-472-2644

For Lodging Assignment Purposes Only
<input type="checkbox"/> Female <input type="checkbox"/> Male

Special accommodations required, handicapped, etc.
Specify _____

Registration Total	\$ _____	Organization to be Billed	_____
Lodging and Meals Total	\$ _____		_____
TOTAL	\$ _____	Do you need a Receipt?	
Amount Enclosed	\$ _____	Yes	<input type="checkbox"/> No <input type="checkbox"/>

CREDIT CARD PAYMENT	<input type="checkbox"/> Master Card	<input type="checkbox"/> Visa	<input type="checkbox"/> Discover
Card Number	_____		
3 Digit Security Code (on back of card)	_____	Expiration Date	____/____
Name on card	_____		
Address of cardholder	_____		