Nebraska Science News





Nebraska Academy of Sciences

Nebraska Association of Teachers of Science

Serving Scientists and Science Educators Across the State of Nebraska

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FROM THE NAS PRESIDENTS' DESK

The Importance of Volunteering

Public outreach and keeping young minds interested in science is a continuous process and all of us are probably doing it whether we know it or not, from keeping your friends and families interested in science through general discussions, to teachers who engage young minds daily, to formal outreach programs that interest a wide variety of people. While you are already engaged in public outreach, I would like to highlight a few NAS sponsored events, and other important events, and encourage you to keep them on your radar. When these opportunities come up, please volunteer and make these exciting events a success.

The Junior Academy of Science has local and regional science fairs in which volunteers are always needed. Many of you sponsor student projects and others help with local and regional judging, if you currently are involved – thanks you! If not, and you are asked to judge/help with an event, please consider taking the time – these outstanding future scientists greatly appreciate the input and encouragement they receive from the judges. The Junior Academy State competition (which takes place at the same time and place as the NAS Annual Meeting in April) is in need of science judges as well. As the 2014 Science Fair approaches, my personal goal is to find 10 willing volunteers to help judge that day – so watch out!

Another major event I would like to bring to your attention is the Science Olympiad National Tournament which will be held May 15-16, 2015, in Lincoln, Nebraska. NAS has pledged \$30,000 to jump start the fundraising for this significant undertaking. There will be lots more information coming in the future, but keep it on your calendars because a large number of volunteers will be needed for this event.

Other events you can consider lending your time and expertise is as a volunteer judge for the Regional Science Bowl competition which is be held in Wayne, NE, the last Saturday of January and the first Saturday in February, yearly. The last one I will mention is the NE Science Festival. Here Nebraskans explore the wonders of science through science and technology related activities, all with the goal of making science accessible, interactive, relevant and fun for kids and adults alike. Next year it will be April 24-27, 2014.

These are a few of the things happening in Nebraska, and as you can see there are <u>many</u> ways you can be involved in Science and Society. We gratefully appreciate your involvement in public outreach whether it is with these programs or others you are involved in. Most of the time we have a very busy calendar and extra motivation is needed to accomplish these events. Keep on the lookout for these and other activities as the respective organizations ask for your help. I hope you can volunteer your time and expertise. We need volunteers to keep the Academy progressing towards the future.

Paraphrasing from *Quaestiones naturales* of Seneca: Many discoveries are reserved for future centuries, when we are long forgotten. Our universe would be boring if it did not offer every generation new problems. Nature does not surrender her secrets once and for all. openlibrary.org,

http://www.archive.org/stream/physicalsciencei00seneial a#page/306/mode/2up (accessed Aug 11, 2013). With all our hard work we can continue to keep younger generations interested in science and keep improving our world!

David Peitz, NAS President

GREETINGS FROM THE NATS PRESIDENT

Recently Katie Ramsey, president-elect, and I attended the NSTA National Congress on Science Education (NCSE) conference in Puerto Rico. The conference is a way for states to get together and discuss issues and ideas to better science education. It is very interesting and informational and great professional development. As you can imagine the topic was Next Generation Science Standards, and as you know Nebraska has not adopted NGSS or common core language arts or math, but many states have adopted NGSS and NSTA supports science frameworks and NGSS.

What I have learned is there are states that have adopted the NGSS but no state has implemented the standards and no state has determined how to assess them. There is a group that is developing a framework for how to assess NGSS that should be out later this fall, not an assessment piece just the framework.

At this summers' LINKS workshop a group of educators roughly aligned Nebraska science standards with NGSS. What we discovered was there are some topics / concepts that are a good fit and others that may be found in different areas or different grade bands. This alignment will be available on the NDE website.

There are some school districts in Nebraska that are looking at NGSS and using it to add or change their curriculum. For districts that want to look at NGSS, I think the first thing is to get familiar with the document; it may seem over whelming at first. Read the appendices, it defines the standards and the performance expectations; it also details what cross cutting themes are and how language arts and math standards are connected. Another document that you can use as a resource is the science framework; this was the basis for the NGSS as well as the Nebraska Science Standards.

Mary Moser, NATS President

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Junior Academy

EQUITY IN SCIENCE ACHIEVEMENT

It was only a few years ago that the president of a prestigious Ivy League school was quoted as saying (infamously) to the effect that women have no place in the "hard" sciences. Yet one only has to look at the number of female winners of Nebraska Junior Academy of Science spring competition in recent years to see that such statements will soon be seen as not only biased, but baseless. Sometimes change comes in ways unexpected. We are used to seeing and calling for change from the top, but the fact is that a groundswell from below is much more irresistible and persistent.

We at Nebraska Junior Academy of Sciences operate at the grass roots level. To my knowledge, there was no large, formal, structural effort by the Academy to encourage girls to participate (and with a great deal of success, recently) in the kind of science that they were supposedly not cut out for. Yet success did occur and participation did widen. How did that happen? Was it because girls felt more competent in general in the current social milieu, having already achieved success in other areas? Was it because teachers have become more open minded about recruitment of science students? Is this mainly a natural outgrowth of an overall increase in female participation in all aspects of education? Decades ago, young women excelled in elementary school, then fell behind boys as they experienced secondary school. How is it different today? I suggest a major operational influence here is the change in society's (read: teachers, parents) expectations. Even though we are often disappointed in specific cases, the fact is that expectations do have an effect on the general population. Students tend to live up or down to our expectations, especially when expression of those expectations go beyond lip service and are put into action. We of the Nebraska Academy of Sciences are in a position of adding to the improvement of equity between boys and girls by using our influence to pull in more students of other so-called minority groups. This means participating teachers can make a difference in student expectation and student performance by communicating positive expectations and providing encouragement and resources to back those verbal cues.

For this to happen, teachers must change before they can expect the students to change. Science teachers will need

to look for signs of student interest, ability or effort on the part of minority students that they may have subconsciously ignored in the past, just as the ability and interest of girls was once ignored. Then teachers must make themselves comfortable with close working relationships with all students - not just students who are like them. Other countries are accomplishing this – it can be done. Let's get started.

Aurietha M. Hoesing, President/State Director Nebraska Junior Academy of Sciences <u>beton@cox.net</u>

NATS FALL CONFERENCE KEYNOTE ANNOUNCED

Our keynote speakers this year for NATS will be Victoria and Dennis Molfese, UNL Developmental Brain Lab, Child, Youth, and Family Studies. Their presentation is entitled, "The Brain's Role in Learning: A True Story with a Happy Ending!" The keynote presentation will be held 8:30-9:50 a.m. in Proett Lower Nelson on Friday, September 27th.

Victoria J. Molfese is Chancellor's Professor in the Department of Child, Youth and Family Studies at the University of Nebraska-Lincoln. She received her Ph.D. in Developmental Psychology from The Pennsylvania State University. She has published journal articles, books, and book chapters in the area of cognitive development in infants, children and adults. She has written grant proposals in support of research activities, including an NIH funded longitudinal research grant on electrophysiological and behavioral predictors of language and cognitive development in children. Her work has been funded by grants from National Institutes of Health, March of Dimes, U.S. Department of Education, U.S. Department of Health and Human Services, the Kellogg Foundation, and NASA. Research is currently underway to evaluate the influence preschool experiences have on the mathematic skills of high-risk preschool children; which was funded by the U.S. Department of Education. Other research is underway on: the relation between early reading and mathematics skills and is seeking to understand brain processing and early learning strategies; the impacts of sleep on cognitive processing in children and adults; and the impacts of sleep, health status, and learning-related behaviors and academic gains by preschoolers. She can be contacted at the Department of Child, Youth and Family Studies, College of Education and Human Sciences, University of Nebraska–Lincoln.

Dennis L. Molfese, Ph.D. is an internationally recognized expert who has published over 160 books and articles on the emerging relationships between brain development, language and cognitive processes from infancy into adulthood.



He is the Director of the Center for Brain, Biology and Behavior at the University of Nebraska–Lincoln, the Director of the Big Ten/Ivy League Inter Conference Traumatic Brain Injury Research Collaboration, a member of the National Academy of Sciences Committee on Sports-Related Concussions in Youth, and Editor-in-Chief for the international scientific journal, *Developmental Neuropsychology*. His work has been continuously funded since 1975 through grants from NIH, NSF and other public and private agencies.

Check	out	their	website	at:
http://www.unl.edu/dbrainlab/				

FALL CONFERENCE ENTERTAINMENT

Featured entertainment for the Thursday evening steak fry and social will be award-Winning Singer-Songwriter Daniel Christian. Daniel blends a pop sensibility with folk roots, which, according to fans, "sounds like cinnamon rolls taste!" Daniel has won two National Country Music Festival awards, and has earned six Omaha Entertainment Award nominations, including Best Singer-Songwriter and Artist of the Year. His song "New Sun Rising," charted on the International Association of Independent Recording Artists' (IAIRA) Top 100.

Daniel has performed for sold-out audiences at Nashville's Bluebird Café and Atlanta's Eddie's Attic, as well as entertaining at Disney theme parks, the Warner Brothers cruise line, and Austin's SXSW Festival. He has opened shows for The Fixx, Gary Allan, and Martina McBride, and was a featured artist on "The Folk Sampler" program on NPR. After teaching high school English for 5 years, Daniel made music his full-time occupation in 2008. He is a member of the National Academy of Recording Arts & Sciences, the Nebraska Arts Council, and a founding member of Nebraska's chapter of the Nashville Songwriters Association International (NSAI).

MAIBEN LECTURER

The Friday afternoon Maiben Lecture has been announced: Joseph Brus, Norfolk Nebraska native will share stories of his trek to the summit of Mt. Everest, as well as other expeditions, and of his work with the military as a science advisor.

"I've been at Camp Pendleton, CA, since June 2011 (just over 2 years), as the Science Advisor for I Marine Expeditionary Force (I MEF) and Marine Corps Forces Central Command (MARCENT). In addition to the Everest summit in May 2011, I completed the "Seven Summits" (climbing the tallest peak on each of the 7 continents) in December 2012." Joseph Brus



Courtesy Photo

LIFETIME ACHIEVEMENT AWARD TO JIM WOODLAND

Congratulations to Jim Woodland who has received the first Nebraska Academy of Science Lifetime Achievement in Science and Science Education Award for his years of service that directly support the goals of the Academy. Throughout the course of his career, Mr. Woodland has facilitated cooperation among scientists and science educators, encouraged young people to be involved in science, recognized high achievements in science and science education, and fostered the positive interaction among stakeholders in science.

Mr. Woodland has served as the Director of Science for the Nebraska Department of Education (NDE) since 1986. Prior to that time, he was an Instructor of Science Education at the University of Nebraska-Lincoln for three years. He began his career in science education as a science teacher for Fremont Public Schools. In the thirteen years he was at Fremont he taught science classes in grades 8-10 including general science, earth science, physical science, and biology. He also developed and conducted a summer geology field course at Fremont and coached the Fremont Eco-meet team. His duties at NDE include the coordination, development, and implementation of Nebraska Science Standards and Assessments; technical advisor for science NCLB; Title II Math/Science Partnership Grants; and is the Advisor to NATS, NAS, and NJAS. In addition, Jim coordinates various teacher and student awards and competitions including the Presidential Award for Excellence in Science Teaching, the National Youth Science Camp for Nebraska, and Nebraska Science Olympiad. He is a national science facilitator for the Web Alignment Tool, a process to document alignment between state standards and assessments. Mr. Woodland has also played an active role in establishing Science Olympiad in Nebraska by coordinating the state tournament, supporting the development of regional tournaments, and leading the charge for Nebraska to host the 2015 National Science Olympiad Tournament.

Mr. Woodland is a member of the Council of State Science Supervisors (President 2000-03), National Science Teachers Association (Director of Supervision 1993-95), Nebraska Association of Teachers of Science (President 1982-83, Advisor to NAS and NATS 1986present), and the National Science Olympiad (Arbitration Committee 1991-present, Executive Board 2005-present). He has received the NATS Catalyst Award, the GWB Pinnacle Award, NSTA Search for Excellence in Science Education, and the Science Olympiad Distinguished Service Award.

Jim's wife Ruth is a fourth grade teacher at Paddock Road Elementary School in Westside District 66. His daughter Sarah teaches vocal music at Aldrich Elementary School in Millard. His youngest daughter, Leah has just accepted a position as Kindergarten teacher at OPS Bancroft Elementary School.

Mr. Woodland has often said, "Science is a verb," and he has worked to make this true in Nebraska. Thus, he is very deserving of this new and prestigious award. I was honored and humbled to present this award to Mr. Woodland on behalf of the Nebraska Academy of Science, and I hope that his example continues to inspire those in science and science education for years to come.

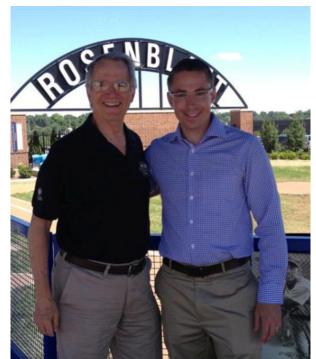
Chris Schaben Past-President, NAS

NEW STATE OF NEBRASKA SCIENCE DIRECTOR

It is hard to feel sad even though this is the first time in a decade I have not been busy preparing for the return of my own students this time of year. While the immediate decision to leave the classroom to become State Director of Science for the Nebraska Department of Education (NDE) was bittersweet, there is so much to be enthusiastic about in this new opportunity. For instance, in addition to providing on-going leadership and technical assistance on Science Standards, I will be directly involved in KICKS₃ (Keep Improving Science Content Knowledge and Skills) as a KICKS chemistry instructor coming up next year. In addition, I get to play a role with the Nebraska Science Matters Network, which is an umbrella organization that combines NDE with NATS (Nebraska Association of Teachers of Science), LINKS (Leaders in Nebraska KICKS Science), and ESUs (through the Key Leaders) to provide science education professional development and a network to connect Nebraska science education. Also, I will continue my eight year tenure with Nebraska Science Olympiad as I transition from coach to director. I look forward to seeing many of you at the regional and state events. Keeping all of these organizations straight can make your head spin. However, I feel the unifying theme that ties all of this together is the essential role I fill, as providing support to teachers by connecting people. Therefore, don't hesitate to call if you have an idea for a workshop or simply want to bring in someone from the science community to be present at a community or school event.

Prior to taking this position, I taught at North Star High School in Lincoln and at Loup City Public Schools grades 7-12. By experiencing a variety of schools in both location and size, I have seen firsthand how the needs of districts vary greatly across the state and the importance of local control in Nebraska to best serve the needs of each community. Consequently, I look forward to the opportunity to work with your school, district, or ESU.

> James Blake james.blake@nebraska.gov



Big shoes to fill! Jim Woodland (left) Science Director for 26 years; James Blake (right) Science Director for 5 weeks!

NATS FALL CONFERENCE NOTICE

Early registration deadline is September 6. Registration is \$95, the best deal lodging and meals is an additional \$135 for two nights, and six meals. Late registration is \$120 so sign up early.

Registration forms are accessible on the NATS home page or you can register and pay from the events page. See you soon. The fax number is 402/472-8899 if you choose to fax your registration form. Schools can submit purchase orders if necessary.

PUBLIC INFORMATION AND EDUCATION MINI-GRANTS UPDATE

The Nebraska Academy of Sciences (NAS) received nine applications for the second quarter 2013 PIE minigrant program. Applications were received from King Science and Technology Center, Introduction to Zoology; Five Rivers Resource, Conservation and Development, Weed Pocket ID Guide; Southeast Flagship Initiative-Northern Prairies Land Trust, Restoration of Nebraska's Oak Woodlands; Conestoga High School, Switching to Sustainable; Nebraska Alliance for Conservation and Environment Education, Nebraska Environmental Literacy Youth Assessment; Pheasants Forever, Train the Trainer Prescribed Fire Program; University of Nebraska–Lincoln, NaturePalooza; Nebraska Game and Parks Commission, Sensory Safari: Inclusive Science Education for all Learners; and Northeast Nebraska Juvenile Services, INC., Garden Project.

Four grants were awarded to: Five Rivers Resource, Conservation and Development, Weed Pocket ID Guide; Conestoga High School, Switching to Sustainable; Pheasants Forever, Train the Trainer Prescribed Fire Program; and the University of Nebraska–Lincoln, NaturePalooza.

Two PIE mini-grant applications were submitted for the third quarter. The Prescribed Burn Task Force submitted an application to "Deliver Effective Prescribed Burning Education in Central Nebraska; and WasteCap Nebraska submitted an application to help fund their 2013 Sustainability Summit. Both were funded.

Several projects were completed the past guarter. The Nature Conservancy distributed 288 books, "Have You Seen Mary" across the state to elementary schools. It is a book about the sand hill crane population in Nebraska. The Wachiska Audubon Society reported on their "Prairie Days, Discovering the Tallgrass Around Us" project. Over 250 students and adults participated in three schools. Here is a quote from their report, "The Prairie Discovery Days are all about introducing students, teachers, parents, and community members to the importance of prairies in our world. Wachiska is striving for this - understanding, appreciation, and stewardship of our tallgrass prairie ecosystems that are nearly gone. With help from the Nebraska Academy of Sciences and the Nebraska Environmental Trust's PIE mini-grant, we were able to accomplish a great deal."

Please consider submitting an application for the fourth quarter 2013 grant period, due October 4th, 2013. Grant forms and information can be found on our website, <u>www.neacadsci.org</u>. Click on NAS and then click on Grants and Scholarships. Due to the small number of applications received for the third quarter more grants may be awarded in the fourth quarter.

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 \$191 million in grants to over 1,400 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/



ACADEMY WEB SITE UPDATES

The NAS/NATS/NJAS web site is adding new content all the time. NATS Fall conference attendees are able to pay online using a credit card or through Paypal.

Our newsletter is available to members and can be downloaded saving money and resources. The Transactions 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: <u>www.neacadsci.org</u>. Click on NEWS; then click on Publications (found on the left side bar).

FULLBRIGHT CANADA SCHOLARSHIP OPPORTUNITIES

Fulbright Canada, part of the worldwide Fulbright Program, supports focused academic exchanges between Canada and the United States. Along with joining the prestigious Fulbright network, all grantees receive a cash award (\$12,500 - \$25,000), a health benefit plan, a three-day orientation in Ottawa, and can apply for <u>enrichment opportunities</u> such as mobility funding (up to \$800) to participate in academic activities outside of their host region, the Alumni Internship Program, the Eco-Leadership Program and the Community Leadership Program. Fullbright Canada is currently seeking applicants for our various research chairs, all valued at \$25,000 for one semester. Fulbright Canada offers an outstanding 43 different visiting research chairs which are available at 22 Canadian Institutions. Please visit the website with a catalogue of our awards:

http://www.fulbright.ca/programs/americanscholars/visiting-chairs-program.html

These chairs offer an extraordinary opportunity to scholars seeking to do comparative research in a welcoming and engaging environment.

We are also recruiting American scholars and students for our self-placed traditional awards that can be held at any institution across Canada. For more information about all of our awards, please visit our website at <u>www.fulbright.ca</u>. Please note that the deadline to apply for the 2014-15 academic year is August 1, 2013 for scholars and October 17, 2013 for graduate students.

- Flyers can be downloaded here: American Scholars: <u>http://www.fulbright.ca/programs/american-</u> <u>scholars.html</u>
- American Students: <u>http://www.fulbright.ca/programs/american-students.html</u>

For general information about programs, please contact Kaitlyn Innes, Program Officer, Recruitment, Outreach and alumni Relations at <u>kinnes@fulbright.ca</u>. If you have specific questions about the Fulbright Visiting Research Chairs, please contact Brad Hector, Program Officer at Fulbright Canada, at <u>bhector@fulbright.ca</u>.

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

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: <u>nebacad@unl.edu</u>.

REMINDERS

- 1) Register to attend the 2013 NATS Fall Conference. You can register using the form in this newsletter or you can also register on line from the Events tab on our website: www.neacadsci.org. There will be sessions in all the different science disciplines as well as numerous sessions for elementary teachers.
- 2) The next Public Information and Education minigrant deadline is October 4th. Grants are awarded in any amount up to \$3000.00. Be sure to submit your applications, the last quarter had few applications so there will be more money available to grant in the fourth quarter.

FALL CONFERENCE SCHOLARSHIPS

Each fall, the Nebraska Association of Teachers of Science offers scholarships to attend our fall conference to preservice 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 Teresa Bender at teresa.bender@ops.org. We hope to see many new faces at the conference this year. Scholarship forms are available on the NATS home page.



THE NEBRASKA ACADEMY OF SCIENCES, INC. (Founded January 30, 1880) 123rd ANNUAL MEETING TO BE HELD at NEBRASKA WESLEYAN UNIVERSITY 50TH and ST. PAUL, LINCOLN, NEBRASKA

FRIDAY, APRIL 11th, 2014

"Call for Papers"

ABSTRACTS, FORM, AND FEES ARE DUE TO SECTION CHAIRPERSONS FEBRUARY 7, 2014

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. <u>YOU WILL RECEIVE EMAIL NOTIFICATION OF YOUR ABSTRACT'S STATUS</u>.

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 FORWARD ALL DOCUMENTS TO THE ACADEMY, <u>nebacad@unl.edu</u>BY FEBRUARY 21st. A HARD COPY OF THE ABSTRACT MUST BE INCLUDED WITH THE REGISTRATION FORM. FORMATTING INSTRUCTIONS ARE AVAILABLE ONLINE AT <u>http://www.neacadsci.org</u>, Click on NAS, then Information OR FROM: 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 \$65.00 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: <u>http://www.neacadsci.org</u> 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.



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