

# RCA UPDATE

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December 3, 2018



## A Special Issue of the RCA Update

This special edition of our weekly e-mail features content from our Institutional Animal Care and Use Committee (IACUC). They are an important NDSU group who support research and teaching activities involving animals. You can expect to see additional IACUC updates throughout the year.

**Jane Schuh**  
Vice President  
Research and Creative Activity

## Viewpoints in Animal Research

Animals have long served an important role in teaching and research at NDSU. Ranging in size from livestock species used in various production classes to rats and mice used in biomedical research, research animals have helped our scientists better understand debilitating diseases such as

diabetes and cancer.

The offices of the Attending Veterinarian and IACUC Administrator support this important work. Both work closely to ensure that research animals are cared for in a manner consistent with federal regulations and that researchers have access to all information regarding animal usage expectations.

This issue of the RCA Update will focus on animal research and teaching by showcasing the work of our principal investigators, highlighting information related to animal care and use, and creating an open dialogue about current issues. Future issues will also be dedicated to animal research information.

We believe in the appropriate investigative and instructive use of animals in advancing problem areas in animal and human health. Review the information we've provided in this issue to learn about animal care and use at NDSU. We encourage your questions and comments.

**Neil Dyer**, NDSU Attending Veterinarian

**Josie Hayden**, Research Integrity Administrator-IACUC

[Learn more about IACUC >>](#)

**Animal Researcher Spotlight**  
**Sarah Wagner, Animal Sciences**

Just like humans and other species, cows can develop sore feet, and when they do, their well-being is diminished and they are less productive.



Alleviating sore feet, (referred to as “lameness” in cattle), is the research focus of Sarah Wagner, an animal sciences professor at NDSU. Wagner has published the results of several studies examining the effectiveness of pain-relieving drugs like those taken by people to relieve lameness in dairy cows.

As cows cannot tell us directly if their feet are sore, a custom-built scale is used to measure how much weight a cow can bear on each limb. As dairy cows typically weigh 1,400-1,600 pounds, it works out to an average of 350-400 pounds on each foot. In her current research project, Wagner is investigating the use of rubber shoes to help keep a cow’s feet healthy and pain-free.



## Statement from the Foundation for Biomedical Research

Nearly every medical breakthrough involves animal research. If you’ve ever taken antibiotics, had a vaccine, a blood transfusion, dialysis, an organ transplant, chemotherapy, bypass surgery or joint replacement, you have benefitted from animal research. In fact, practically every drug, treatment, medical device, diagnostic tool or cure we have today was

developed with the help of animal testing and research.

Research with cows helped create the world's first vaccine, which in turn helped end smallpox. Studies with monkeys, dogs, and mice led to the polio vaccine. Drugs used to combat cancer, HIV/AIDS, Alzheimer's, hepatitis, and malaria would not have been possible without research with primates.

Immunizations save countless lives and the survival rates for many major diseases are at an all-time high thanks to the discovery of new drugs and the design of sophisticated medical devices and surgical procedures.

[Learn more >>](#)



**Congratulations to all award recipients from October!**

View the complete list online: [PDF](#) | [Excel](#)

The awards listed are externally funded projects. Each month one of the RCA Updates will include prior month awards.

[See Award Reports from previous months >>](#)

**How to find your NSF User ID:**

If you have forgotten your National Science Foundation (NSF) User ID, you can use the [Lookup ID tool](#) on the NSF Fastlane website to find your User ID.

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## **DOD ONR: STEM Education and Workforce Program**

The Office of Naval Research (ONR) has issued a Funding Opportunity Announcement (FOA [#N00014-19-S-F003](#)) intended to solicit white papers and applications that provide strategic solutions to naval-relevant challenges and that meet the evaluation criteria specified in the FOA. Grant applications will be invited following the mandatory white paper submission process. Awards will take the form of grants. This announcement explicitly encourages projects that improve the capacity of education systems and communities to create impactful STEM educational experiences for students and workers. Submissions are encouraged to consider including active learning approaches and incorporating 21st century skill development. Projects must aim to increase student and worker engagement in STEM and enhance people with needed Naval STEM capabilities. ONR encourages applications to utilize current STEM educational

research for informing project design and advancing our understanding of how and why people choose STEM careers and opportunities of naval relevance. While this announcement is relevant for any stage of the STEM educational system, funding efforts will be targeted primarily toward projects addressing the below communities or any combination of these communities:

- Secondary education communities;
- Post-Secondary communities;
- Informal science communities;
- Current naval STEM workforce communities.

Project scope may range in size and complexity. Projects that are already established with prior funding sources or have established stakeholders are especially encouraged to consider the following scope areas:

- Develop and implement exploratory pilot projects that seek to create new educational experiences within educational and training communities.
- Develop larger cohesive STEM education and training activities that strengthen the capacity of regional communities and stakeholders to improve STEM education and training.
- Establish meetings of stakeholders that must seek to connect relevant people and organizations to explicitly develop broader projects for impacting entire communities.

*White Paper Inquiries and Questions deadline: June 17, 2019;*

*White Papers must be received between April 1, 2019 – June 28, 2019;*

*Application Inquiries and Questions deadline: Sept. 16, 2019;*

*Applications deadline: Sept. 27, 2019.*



## **NEH: Summer Seminars and Institutes**

NEH [Summer Seminars and Institutes grants](#) broaden and deepen understanding of the humanities in supporting professional development programs, specifically designed for a national audience of K-12 educators or college and university faculty. The programs provide one- to four-week opportunities for participants (NEH Summer Scholars) to explore a variety of topics relevant to K-12 or undergraduate education in the humanities. An NEH Summer Seminar or Institute may be hosted by a college, university, learned society, center for advanced study, library or other repository, cultural or professional organization, or school or school system. The host site must provide facilities for collegial interaction and scholarship. The program must be held only in the United States and its territories. Seminars and Institutes are designed either for K-12 educators or for college and university faculty. Programs for K-12 educators must involve someone with significant K-12 experience in both project planning and implementation and must respond to K-12 curricular needs.

NEH Summer Seminars and Institutes:

- focus on the study and teaching of significant texts and other resources;
- provide models of excellent scholarship and teaching;
- contribute to the intellectual growth of the participants; and
- build lasting communities of inquiry.

**Seminars:** A Seminar provides an intimate and focused environment in which sixteen participants study a specific humanities topic under the guidance of one or two established scholars. Seminars have few, if any, visiting faculty. They emphasize sustained interaction among the participants and director(s) through discussion of common readings, conversations about teaching, and advising on independent projects.

**Institutes:** An Institute allows twenty-five to thirty-six participants to pursue an intensive program of study under a team of scholarly experts, who present a range of perspectives on a humanities topic. Participants and scholars mutually

explore connections between scholarship about and the teaching of the topic.

*Application available: December 14, 2018;*

*Preliminary draft proposal deadline: approx. January 22, 2019;*

*Final application deadline: February 14, 2019*

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## **NIH: Exploring Molecular Links Between Dietary Interventions and Circadian Rhythm (R01)**

This National Institutes of Health (NIH) Funding Opportunity Announcement (FOA / [RFA-AG-19-029](#)) encourages innovative experimental approaches to explore how dietary intervention entrains peripheral or central clocks to maintain tissue homeostasis and how circadian regulation integrates with various dietary strategies to achieve optimal health benefits.

To achieve an in-depth understanding of the basic biology of interplay between alterations of circadian rhythms and fasting/feeding cycles in promoting healthspan, this FOA encourages comprehensive, collaborative research projects that would increase our knowledge of mechanistic links between peripheral or central circadian regulation of promising dietary interventions in the following areas:

1. Age-related changes in circadian amplitudes, expression of clock-controlled genes and associated physiological consequences;
2. Changes with age in the molecular crosstalk between central and peripheral clocks;
3. The impact and molecular mechanisms of different dietary interventions aimed at altering aging on circadian gene and protein expression as well as epigenetic modification and metabolomic changes;

4. Changes with age in the tissue-specific mechanisms in peripheral or central circadian regulation in response to systematically varied dietary interventions;
5. Physiological consequences of circadian gene mutations that alter the efficacy for healthspan manipulations;
6. Identification of novel circadian genes that modulate DI responses;
7. Identification of novel diet-susceptible genes that might impact circadian clock entrainment; and
8. Systems biology approaches to discover novel networks connecting circadian regulation and dietary interventions to impact healthspan during aging.

*Letter of Intent deadline: February 6, 2019*

*Application deadline: March 6, 2019*

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## **NSF: Macrosystems Biology and NEON-Enabled Science**

The [Macrosystems Biology and NEON-Enabled Science \(MSB-NES\): Research on Biological Systems at Regional to Continental Scales program](#) will support quantitative, interdisciplinary, systems-oriented research on biosphere processes and their complex interactions with climate, land use, and invasive species at regional to continental scales as well as training activities to enable groups to conduct Macrosystems Biology and NEON-Enabled Science research. **Proposers are encouraged to use [NEON](#) resources, and proposals for substantive and innovative NEON-enabled research will be prioritized for funding.** Substantive NEON-enabled projects rely on data and/or samples collected by NEON, co-locate research activities at NEON sites, and/or develop tools that will explicitly enhance the processing, use,

and/or analysis of NEON data or collections within the context of Macrosystems Biology research questions. Two categories of awards will be made: Macrosystems Research Awards may be up to 5 years in duration and will average \$1M. Macrosystems Small Awards will be limited to \$300,000 and up to 3 years in duration.

*Application deadline: February 25, 2019*



## **NSF: Mid-scale Research Infrastructure-1**

The NSF Mid-scale Research Infrastructure -1 (RI-1) program ([NSF 19-537](#)) emphasizes strong scientific merit and response to an identified need of the research community. Within Mid-scale RI-1, proposers may submit two types of projects: "Implementation" and "Design". Design and Implementation projects may comprise any combination of equipment, infrastructure, computational hardware and software, and necessary commissioning. Design includes planning (preliminary and final design) of research infrastructure with an anticipated total project cost that is appropriate for future Mid-scale RI-1, Mid-scale RI-2 or Major Research Equipment and Facilities Construction (MREFC) - class investments. Mid-scale RI-1 uses an inclusive definition of implementation, which can include traditional stand-alone construction or acquisition and can include a degree of advanced development leading immediately to final system acquisition and/or construction. Mid-scale RI-1 "Implementation" projects may have a total project cost ranging from \$6 million up to below \$20 million. Projects must directly enable advances in fundamental science, engineering or science, technology, engineering and mathematics (STEM) education research in one or more of the research domains supported by NSF. Implementation projects may support new or upgraded research infrastructure. Only Mid-scale RI-1 "Design" projects may request less than \$6 million, with a minimum request of \$600,000 and a maximum request below

\$20 million as needed to prepare for a future mid-scale or larger infrastructure implementation project. (Successful award of a Mid-scale RI-1 design project does not imply NSF commitment to future implementation of that project.)

**Note:** Mid-scale research infrastructure projects beyond the Mid-scale RI-1 program limit are anticipated to be separately solicited by a Mid-scale RI-2 program. Demonstrated technical and managerial experience is required for both design and implementation projects, as are well-developed plans for student training and the involvement of a diverse workforce in all aspects of mid-scale activities.

*Preliminary proposals due: February 19, 2019;*

*Full proposals due (by invitation only): May 20, 2019*

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## **Research ND Program adds December Application Deadline**

According to James Leiman, Senior Manager for Strategy, Research and Intellectual Property for the North Dakota Department of Commerce, applications for the Research ND program submitted by December 7, 2018, will be part of the January Centers Of Excellence Commission meeting. Typically applications are only accepted on a quarterly basis, so this is a bonus opportunity! For details about the program and to access an application, please see the [Research ND website](#).

Applications for the Research ND and Venture Grant Phase II programs require a 1:1 match by a private sector partner as well as a signed Partnership Agreement, so please work with Joycelyn Lucke Love ([Joycelyn.lucke@ndsu.edu](mailto:Joycelyn.lucke@ndsu.edu)) to secure that prior to submission to Sponsored

Programs Administration (SPA). Applications must be routed through SPA, and are submitted electronically by SPA. (Please note that Venture Grant Phase I applications are no longer being accepted for the current biennium.) Please contact [ndsu.research@ndsu.edu](mailto:ndsu.research@ndsu.edu) with any questions.

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## **Sanford Health - NDSU Collaborative Research Seed Grant Program**

The fifth Sanford Health - NDSU Collaborative Research Seed Grant program's Request for Applications (RFA) will be released December 8, 2018. Proposals are to be submitted electronically to [NDSU.BusinessDev@ndsu.edu](mailto:NDSU.BusinessDev@ndsu.edu) by 5:00 PM on March 19, 2018. The full RFA and Application form can be downloaded from the [program's webpage](#).

**To better facilitate collaboration between NDSU and Sanford Health collaborators, proposers are requested to submit a short description of a possible proposal by January 29th. Additional information about the Collaboration Request can be found in the RFA or at the link above.**

Questions regarding suitability of topic areas, collaborating with Sanford, or other program-related questions can be addressed by Business Development (231-6660 or [NDSU.businessdev@ndsu.edu](mailto:NDSU.businessdev@ndsu.edu)).

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## **Spencer Foundation: Education Research Projects**

The [Spencer Foundation](#) is dedicated to the belief that research is necessary to the improvement of education. To that end, the foundation supports high-quality investigations of education through its research programs and the strengthening and renewal of the educational research community through its fellowship and training programs.

Through its [Small Research Grants Program](#), the Spencer Foundation is accepting proposals for education research projects. In keeping with the foundation's mission, the program aims to fund academic work that will contribute to the improvement of education, broadly conceived. **Examples** of previously funded projects include an experimental study of how college students use visual representations in solving math problems; a study exploring the process of racial and rural identity formation among African-American high-school students who attend de facto segregated schools in the rural South; and a mixed-methods study focusing on the different types of knowledge novice and experienced teachers draw on in teaching reading comprehension.

The program awards grants of up to \$50,000. To be eligible, principal investigators and co-PIs must have an earned doctorate in an academic discipline or professional field, or appropriate experience in an education research-related profession.

*Deadline: February 1, 2019*



## **Unmanned Aircraft User Group Meetings**

Monthly brown bag meetings are scheduled to provide an informal opportunity to share information and ask questions about using unmanned aircraft. At the December meeting researchers from the Department of Biological Sciences and the Carrington Research Extension Center will discuss their recent

experiences using unmanned aircraft. Please join us:

**Unmanned Aircraft User Group Meeting**  
**Friday, December 7, 2018 | 12-1 p.m.**  
**Memorial Union Room of Nations**

For more information about unmanned aircraft (drones), visit the [NDSU Unmanned Aerial Vehicles webpage](#).

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## **NSF CAREER 101**

Are you interested in the NSF CAREER program but are not sure where to start or what is involved? This session is designed for those new to the program. It will include a program overview, proposal requirements, planning for an application, and opportunities for Q&A.

**NSF CAREER 101**  
**Tuesday, December 11, 2018 | 12-1 p.m.**  
**Memorial Union Peace Garden Room**  
**[Register to attend >>](#)**

The National Science Foundation (NSF) Faculty Early Career Development ([CAREER](#)) Program is a prestigious grant award program that supports early career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research.

Have questions, ideas, or suggestions for the RCA Update?

[Contact Us](#)



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*The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training.*

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