

**NDSU** OFFICE OF  
RESEARCH AND CREATIVE ACTIVITY

# RCA UPDATE

---

January 14, 2019

## Recognizing Undergraduate Research Mentors



This issue of the RCA Update introduces a new feature focused on undergraduate research mentoring. These faculty highlights include great information on current research involving NDSU undergraduate students and the experiences of their faculty mentors. Students engaged in research at NDSU have reported higher levels of satisfaction with their overall academic experience, a better connection to faculty, and feeling valued on campus. Thanks to all of you who involve and support undergraduate students in research and scholarly activities.

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

**Undergraduate Research Mentor**

# Kenneth Lepper, Ph.D.

## *Geosciences*

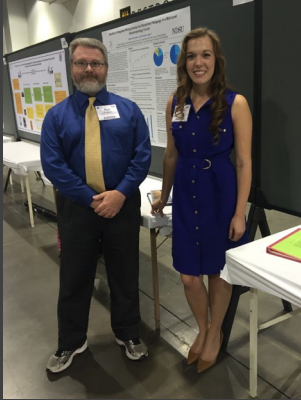
### **Describe your research interests / programs:**

Oceans are a fundamental component of the global climate system, but large lakes can also respond to and potentially even drive climate change. My research is primarily focused around understanding the interactions between large lakes and the global climate system. This involves studying shoreline histories of ancient glacial lakes such as Lake Agassiz as well as the modern Great Lakes: Superior, Huron, and Michigan. In addition to these long-term interests, I am currently part of an NSF supported collaborative team studying a previously unidentified glacial lake in Central Michigan. I established and continue to operate a geologic dating lab at NDSU, the "ODD Lab" (Optical Dating and Dosimetry), to support this research.



### **How have undergraduates been involved in your research?**

Typically I supervise undergraduate lab assistants, but generally they are also working on an individualized research project. After they become familiar with the lab work and current projects, we devise a component of a larger project that can be carved out as their research. Sometimes the students begin working with me early enough that they can be involved in the fieldwork component as well as the lab component of a project.



More recently I have begun mentoring a team-based, student co-managed, authentic research course for undergraduates called CHRONOQUEST. The boundary conditions for the course are simple; the research question has to be about Lake Agassiz and something we can address with geochronology and field geomorphology. In spring semesters the students do literature readings for background, develop their research question, plan and execute the fieldwork. Lab work generally

takes place over the summer by one of the student researchers from the course. The following fall semester the same group of students re-assembles to interpret results and prepare a conference presentation.

**What is the best thing about being an undergraduate research mentor?**

Remembering and reinvigorating your own joy in science as you see it developing and playing out in the lives of younger people.

[Learn more about Dr. Lepper's experiences and mentoring advice >>.](#)

**NDSU** **EXPLORE**

UNDERGRADUATE EXCELLENCE IN RESEARCH AND CREATIVE ACTIVITY

**SAVE THE DATE**

**APRIL 11, 2019**

Registration will open in Spring semester



### **Congratulations to all award recipients from November 2018!**

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 >>](#)

### **Collaboration Requests Due January 29, 2019: Sanford Health - NDSU Collaborative Research Seed Grants**

To better facilitate collaboration between NDSU and Sanford Health collaborators, proposers are requested to submit a short description of a possible proposal to [ndsu.businessdev@ndsu.edu](mailto:ndsu.businessdev@ndsu.edu) by January 29, 2019. Additional information about the seed grant program and the collaboration request can be found on the [program's webpage](#).



### **Pivot Training**

Any NDSU department, college or group interested in a training demonstration and/or Q&A session on use of [Pivot](#) should contact [Research Development](#) to make a request. We will attempt to meet all such requests at your convenience during spring semester.

Pivot is **free** for current faculty, staff, and students to use. NDSU subscribes to Pivot for these purposes:

- It allows customized [Funding Searches](#) (grants, fellowships, etc.) in all disciplines from both public and private sources and sends email alerts about funding in one's specific areas of interest.
- It maintains a searchable profile inventory of [NDSU Scholar Expertise](#).
- It offers detailed information about [Calls for Papers](#) issued by professional bodies, journal editors, and other conference organizers in all disciplines.

## Pivot & Papers Invited

With [Papers Invited](#), found within [Pivot](#), scholars can discover special journal issues and search thousands of conferences from all over the world that are requesting "calls for papers" where researchers can present and publish their research, covering hundreds of academic disciplines.

[Learn more >>](#)

---

# CONTENTS

## FUNDING OPPORTUNITIES

- [Caplan Foundation for Early Childhood](#)

- [DOD / DOE / NSF / USDA: National Robotics Initiative - Ubiquitous Collaborative Robots](#)
- [DOD CDMRP: Breast Cancer and Ovarian Cancer](#)
- [DOE: Early Career Research Program](#)
- [NAS: Research Associateship Program](#)
- [NIH Bioengineering Opportunities](#)
- [NSF: Scholarships in Science, Technology, Engineering, and Mathematics \(S-STEM\) Program](#)
- [Smith Richardson Foundation: Public Policy Research](#)
- [Sanford Health - NDSU Collaborative Research Seed Grants](#)
- [USDA NRCS: Conservation Collaboration Grants](#)

## NOTICES

- [Pivot is Moving to a New URL](#)
- [Implementation of Revisions to Common Rule - January 21, 2019](#)



**Looking for  
Collaborators?  
Visit the  
[NDSU Scholars  
Database](#)**



**In Search of  
Equipment?  
Check the  
[NDSU Equipment  
Database](#)**



Need to update your profile?  
Click here to learn how!

## Caplan Foundation for Early Childhood

The [Caplan Foundation for Early Childhood](#) supports innovative, creative projects and programs with the potential to significantly enhance the development, health, safety, education, and/or quality of life of children from birth through age five. The foundation provides funding in three areas:

1. **Early Childhood Welfare:** Children can only reach their full potential when all aspects of their development - intellectual, emotional, and physical - are optimally supported. Providing a safe and nurturing environment for infants and preschoolers is essential, as is imparting to them the skills of social living in a culturally diverse world. The foundation supports programs that evaluate best child-rearing practices and identify models that can provide creative, caring environments in which all children thrive.
2. **Early Childhood Education and Play:** Research shows that children need to be stimulated as well as nurtured, early in life if they are to succeed in school, work, and life. That preparation relates to every aspect of a child's development, from birth to age 5, and everywhere a child learns - at home, in childcare settings and in preschool. The foundation seeks to improve the quality of both early-childhood teaching and learning through the development of innovative curricula and research-based pedagogical standards, as well as the design of imaginative play materials and learning environments.

3. **Parenting Education:** To help parents create nurturing environments for their children, the foundation supports programs that teach parents about developmental psychology, cultural child-rearing differences, pedagogy, issues of health, prenatal care and diet, and programs that provide both cognitive and emotional support to parents.

*Letters of Intent deadline: January 31, 2019; Upon review, applicants will be invited to submit a full application.*



## **DOD / DOE / NSF / USDA: National Robotics Initiative - Ubiquitous Collaborative Robots (NRI 2.0)**

The National Robotics Initiative – Ubiquitous Collaborative Robots program ([NRI-2.0](#)) builds upon the original National Robotics Initiative (NRI) program to support fundamental research in the United States that will accelerate the development and use of collaborative robots (co-robots) that work beside or cooperatively with people. The focus of the NRI-2.0 program is on ubiquity, which in this context means seamless integration of co-robots to assist humans in every aspect of life.

The program supports four main research thrusts that are envisioned to advance the goal of ubiquitous co-robots: scalability, customizability, lowering barriers to entry, and societal impact – more details on these are provided in the [program solicitation](#).

Collaboration between academic, industry, non-profit, and other organizations is encouraged to establish better linkages between fundamental science and engineering and technology development, deployment, and use. The NRI-2.0 program is supported by multiple agencies of the federal government including



the National Science Foundation (NSF), the U.S. Department of Agriculture (USDA), the U.S. Department of Energy (DOE), and the U.S. Department of Defense (DOD).

*Application deadline: February 19, 2019*



## **DOD CDMRP: Breast Cancer and Ovarian Cancer**

The Fiscal Year 2019 (FY19) Defense Appropriation Act provides funding for the peer reviewed programs managed by the Department of Defense (DOD) office of Congressionally Directed Medical Research Programs ([CDMRP](#)). The agency is notifying the research community of recently released pre-announcements to allow investigators time to plan and develop ideas for submission to the anticipated FY19 funding opportunities.

FY19 funding opportunities are anticipated to be released in January 2019 for the following programs:

- [Breast Cancer Research Program](#)
- [Ovarian Cancer Research Program](#)

To be notified when the full program announcements/funding opportunities are released, you can sign up for program specific news and updates at <https://ebrap.org>.



## **DOE: Early Career Research Program**

The Department of Energy (DOE) Office of Science (SC) invites grant applications for support under the Early Career Research Program ([DE-FOA-0002019](#)) in the following program areas: Advanced Scientific Computing Research (ASCR); Biological and Environmental Research (BER); Basic Energy Sciences (BES), Fusion Energy Sciences (FES); High Energy Physics (HEP), and Nuclear Physics (NP). The purpose of this program is to support the development of individual research programs of outstanding scientists early in their careers and to stimulate research careers in the areas supported by SC.

*Required Pre-Application Deadline: February 6, 2019*

*Full Application Deadline: April 29, 2019*



## **NAS: Research Associateship Program**

The National Academies of Sciences, Engineering, and Medicine NRC [Research Associateship Program](#) (RAP) sponsors awards for postdoctoral and senior researchers at [participating federal laboratories and affiliated institutions](#). These awards include generous stipends ranging from \$45,000 - \$80,000 per year for recent Ph.D. recipients, and higher for additional experience. Limited graduate level awards are also available. These awards provide the opportunity for recipients to do independent research in some of the best-equipped and staffed laboratories in the U.S. Research opportunities are open to U.S. citizens, permanent residents, and for some of the laboratories, foreign nationals. Applicants should contact prospective Research Adviser(s) at the lab(s) prior to the application deadline to discuss their research interests and funding opportunities.

*There are four annual review cycles:*

- *February: Opens December 1; Closes February 1*
- *May: Opens March 1; Closes May 1*
- *August: Opens June 1; Closes August 1*
- *November: Opens September 1; Closes November 1*



## **NIH: Bioengineering Opportunities (R01 and R21)**

### Bioengineering Research Grants (R01)

The purpose of this funding opportunity announcement (FOA) is to encourage collaborations between the life and physical sciences that:

1. apply a multidisciplinary bioengineering approach to the solution of a biomedical problem; and
2. integrate, optimize, validate, translate or otherwise accelerate the adoption of promising tools, methods and techniques for a specific research or clinical problem in basic, translational, or clinical science and practice. An application may propose design-directed, developmental, discovery-driven, or hypothesis-driven research and is appropriate for small teams applying an integrative approach to increase our understanding of and solve problems in biological, clinical or translational science.

Principles and techniques in quantitative sciences such as physics, mathematics, chemistry, computer sciences, and engineering are increasingly applied to good effect in biomedical research. Bioengineering approaches integrate principles from diverse technical and biomedical fields, and the resulting multi-disciplinary research provides new understanding, innovative technologies, and new products that improve basic knowledge, human health, and quality of life. This FOA seeks to encourage collaborations of quantitative

and physical scientists with biomedical researchers to catalyze the development of innovative bioengineering approaches to the solution of important problems in biomedical research, clinical investigations, and medical practice.

Significant projects may include, but are not limited to: validation and translation of promising tools for prevention, monitoring or intervention; development of quantitative, predictive models of complex biological systems; integration and optimization of technologies that significantly increase sensitivity, specificity, positive predictive value, negative predictive value, efficiency, or throughput of measurements to address unsolved biological or medical questions; or engineering and testing of delivery systems, tissues, therapeutics, implants, and prosthetics that may improve treatment and healthcare.

*Standard R01 Application Deadlines apply*

### Exploratory/Developmental Bioengineering Research Grants (R21)

The purpose of this engineering-oriented funding opportunity announcement (FOA) is to encourage submissions of exploratory/developmental Bioengineering Research Grant (EBRG) applications to demonstrate feasibility and potential utility of new capabilities or improvements in quality, speed, efficacy, operability, costs, and/or accessibility of solutions to problems in basic biomedical, pre-clinical, or clinical research, clinical care delivery, or accessibility.

Proposed research to solve a wide range of relevant problems is sought, and may explore, but is not limited to:

1. a new multidisciplinary approach to a biomedical challenge;
2. high- or low-risk development of significance; or
3. data collection to support future research with potential significance.

An EBRG application may propose, but is not limited to hypothesis-driven, discovery-driven, developmental, or design-directed research. It may draw upon engineering, physical sciences, biological/medical sciences, mathematics, informatics, machine learning or any other relevant source of science or knowhow. To facilitate these objectives, modifications of standard review criteria are made to accommodate features specific to engineering-oriented applications.

*Standard R21 Application Deadlines apply*



## **NSF: Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) - Limited Submission Program**

Limited submission grant programs are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

**NSF S-STEM : Notify RCA by 1/16/2019, 5:00 p.m. if you intend to apply.**

A well-educated science, technology, engineering, and mathematics (STEM) workforce is a significant contributor to maintaining the competitiveness of the U.S. in the global economy. The National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program (NSF 17-527) addresses the need for a high quality STEM workforce in STEM disciplines supported by the program and for the increased success of low-income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, or graduate degrees in STEM. Recognizing that financial aid alone cannot increase retention and

graduation in STEM, the program provides awards to Institutions of Higher Education (IHEs) to fund scholarships and to advance the adaptation, implementation, and study of effective evidence-based curricular and co-curricular activities that support recruitment, retention, transfer (if appropriate), student success, academic/career pathways, and graduation in STEM. The S-STEM program encourages collaborations among different types of partners: Partnerships among different types of institutions; collaborations of STEM faculty and institutional, educational, and social science researchers; and partnerships among institutions of higher education and local business and industry, if appropriate. The program seeks:

1. to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in STEM and entering the workforce or graduate programs in STEM;
2. to improve the education of future scientists, engineers, and technicians, with a focus on academically talented low-income students; and
3. to generate knowledge to advance understanding of how factors or evidence-based curricular and co-curricular activities affect the success, retention, transfer, academic/career pathways, and graduation in STEM of low-income students.

*Applications due: March 27, 2019*



## **Smith Richardson Foundation: Public Policy Research**

The mission of the [Smith Richardson Foundation](#) is to contribute to important public debates and to address serious public policy challenges facing the United States and ensure the vitality of its social, economic, and governmental institutions. It also seeks to assist with the development of effective policies to

compete internationally and to advance U.S. interests and values abroad. The Foundation's [Domestic Public Policy Program](#) supports projects that aim to help the public and policy makers understand and address critical challenges facing the United States. The Foundation has developed a number of grant making portfolios. A group of grants is focused on the challenges of identifying mechanisms that can inform thinking on fiscal practices at the national, state, and municipal levels. In terms of **human capital development**, the Foundation has been supporting work to identify how schools can become more productive by, for example, increasing the quality of the teacher workforce or adopting more effective curricula. Because success in the contemporary economy requires individuals to acquire education and training beyond high school, the Foundation is building a portfolio of projects on **post-secondary education**. Finally, the Foundation is supporting work on the **criminal justice** system that will examine whether costs can be lowered while still protecting public safety. Grants will be awarded for research on and the evaluation of existing public policies and programs, as well as projects that inject new ideas into public debates. In previous years, grant amounts have ranged between \$25,000 to \$104,000.

*Concept papers are accepted on an ongoing basis. Upon review, selected applicants will be invited to submit a full proposal.*



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

The fifth Sanford Health - NDSU Collaborative Research Seed Grant program's Request for Applications (RFA) has been released. 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 to [NDSU.BusinessDev@ndsu.edu](mailto:NDSU.BusinessDev@ndsu.edu). 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)).

[^^](#)

## **USDA NRCS: Conservation Collaboration Grants**

The Natural Resources Conservation Service (NRCS) [announced](#) potential availability of grants and agreements for the purpose of leveraging NRCS resources, addressing local natural resource issues, encouraging collaboration and developing state- and community-level conservation leadership. Proposals will be accepted for projects located in the following states: Minnesota, Nebraska, North Dakota, South Dakota, and Kansas. NRCS anticipates that the amount available for support of this program will be \$6M for North Dakota.

The purpose of Conservation Collaboration Grants or Agreements is to leverage NRCS and partner resources to:

- Improve soil health.
- Improve water quality.



- Provide habitat for local wildlife species of concern.
- Improve the environmental and economic performance of working agricultural lands.
- Assist communities and groups to build and strengthen local food projects that provide healthy food and economic opportunities.

Emphasis will be placed on projects that:

- Build technical capacity to implement Farm Bill Conservation Programs.
- Build technical capacity of NRCS and partner field conservation employees.
- Build the capacity of local partners to develop and implement effective projects.
- Leverage non-Federal and non-government resources to achieve positive natural resources conservation outcomes.

**In addition to the listed areas of emphasis MINNESOTA and NORTH DAKOTA will be accepting proposals that add NEW capacity to deliver farm bill conservation related activities. Proposals will be accepted and considered from all interested parties; proposals addressing the following areas of importance will be given priority consideration:**

- **Engineering assistance – preliminary designs, final designs, implementation and geological site evaluations**
- **Grazing assistance – grazing plans, demonstrations and training**
- **Tribal Conservation Planners and planning**
- **Watershed focused results (benefits of targeting and social outcomes)**
- **AG 101 – field training to increase awareness of cropping systems and equipment utilized in agriculture**
- **Prescribed Burn – plans, trainings and creating a network of consultants**

See the [Funding Opportunity](#) for complete application and submission details.

*Application deadline: February 20, 2019*



## **Pivot is Moving to a New URL**

On March 1, 2019, Pivot is moving to <https://pivot.proquest.com> and the current Pivot URL, <https://pivot.cos.com> will be discontinued. Traffic to cos.com **will not** automatically redirect to the new URL, including any links you have saved.

This is a change in address only: all data remains, and the user experience and functionality are unchanged.

**Pivot users should update saved links to reflect the new address.**



## **Implementation of Revisions to Common Rule - January 21, 2019**

Full Implementation of the revised Common Rule will go into effect January 21, 2019. At that time, NDSU will begin using the revised Exemption Categories (with the exception of Categories 7 and 8), will implement the additional option for waiving documentation of consent, continue to comply with the additional elements of consent required for non-exempt research and apply flexibility to annual continuing review requirements where permitted.

Helpful resources on these changes can be found on the NDSU [Institutional Review Board](#) webpage.



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

[Contact Us](#)



---

*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.*

*You are receiving this notification through the NDSU official employee listserv or sub-list. The official listserv refreshes after each pay period.*

*North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, race, religion, sex, sexual orientation, or status as a U.S. veteran. Direct inquiries to: Equal Opportunity Specialist, Old Main 201, 701-231-7708 or Title IX/ADA Coordinator, Old Main 102, 701-231-6409.*