

RCA UPDATE

November 18, 2019

Chad Ulven

November 2019 RCA Researcher of the Month

As you glance around Chad Ulven's office, it's not difficult to see how ubiquitous his bio-composite products can be. Whether it's the bicycle helmets, the hockey stick, the pickleball paddle, or the 6 foot plus tall paddleboard propped up in the corner, it's apparent that this NDSU mechanical engineering professor's work comes in many varied forms. Created using natural fibers, Chad's products are more sustainable replacements for traditional petrochemical products.

A love for mechanics brought him to NDSU, where he earned his BS. Afterwards, he went to graduate school at the University of Alabama at Birmingham and worked for a summer as a research scholar at the U.S. Army Research



lab in Aberdeen, MD. Chad notes how it was at this time that he developed his interest in traditional composite materials made from advanced fibers such as carbon and Kevlar. He soon concluded that developing similar composites from renewable materials represented a way for him to improve certain attributes of items (such as vibration dampening) and create ecologically-friendly products.

When he was an undergraduate student, Chad found his first research opportunity through a classmate. “When I looked at it, it was a better job than the one I had so I joined his lab.” Soon he was making composite materials for armor. “That undergraduate research experience showed me the path I wanted to follow and got me to the University of Alabama at Birmingham and soon after graduation, the NDSU position opened up.”

Fourteen years of research in both flax and hemp based biocomposites at NDSU have proven that he is on the right track. Chad is currently the principal or co-principal investigator of six research projects related to composite material development totaling over \$3.5 million. In 2014 he cofounded c2sensor, a company that develops sensors for agriculture that provide soil condition data such as moisture and salt levels to readers that are passed over them. Both biodegradable and inexpensive, the sensors give agriculture producers a simple method to monitor their soil health. A sister company called c2renew develops consumer products using the same bio-based technology.

[*Read more about Chad Ulven, the November 2019 Researcher of the Month >>*](#)

We apologize for the formatting issues in last week's RCA Update. You can view the corrected version of the November 12, 2019 edition [here](#). Funding opportunities from last week's edition have been repeated [below](#).

November Issue of Research Development & Grant Writing News

The November issue of [Research Development and Grant Writing News](#) is now available to view. Use your NDSU login information to access this resource. Various topics are covered, including:

- What is the Intellectual Significance of Your Proposed Humanities Project?
- Humanities and Arts Funding Opportunities and News
- AI's Really Big Footprint Across Disciplines
- Advice and Resources for Your MRI Proposal
- Why Do Well Reviewed Proposals Get Declined for Funding

2020 NSF ENG CAREER Proposal Workshop

The NSF CAREER program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of 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. An [NSF CAREER Proposal Workshop](#) focused on engineering will be held March 31 – April 2, 2020 in Arlington, Virginia. The objective of the 2020 NSF ENG Directorate Workshop is to introduce junior faculty who are interested in submitting

NSF CAREER proposals to the Directorate for Engineering. The workshop aims to provide individuals with proposal development insights and a forum in which they can interact with NSF program directors and recent NSF CAREER awardees.

Workshop participation will be by invitation, based on applications, and limited to 300 participants who will be selected from the pool of applicants based on:

- a) applicability of the proposed research to the Directorate for Engineering,
- b) timeliness and completeness of the application, and
- c) preference given to those who have not previously attended an NSF Engineering CAREER workshop.

Please review the [application page](#) for further information.

Application Deadline: January 6, 2020

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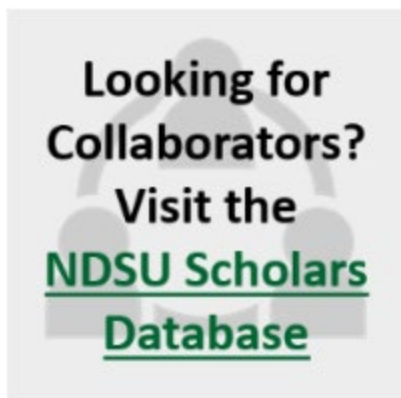
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Need to update your profile?
Click here to learn how!

Allen Foundation: Human Nutrition

Established in 1975 by agricultural chemist William Webster Allen, the Foundation makes [grants](#) to projects that benefit human nutrition in the areas of education, training, and research.

Policies and Priorities:

- To make grants to fund relevant nutritional research.
- To support programs for the education and training of mothers during pregnancy and after the birth of their children, so that good nutritional habits can be formed at an early age.
- To assist in the training of persons to work as educators and demonstrators of good nutritional practices.
- To encourage the dissemination of information regarding healthful nutritional practices and habits.
- In limited situations to make grants to help solve immediate emergency hunger and malnutrition problems.

Full Application deadline: January 15, 2020

[Track this program >>](#)



Caplan Foundation for Early Childhood

The [Caplan Foundation for Early Childhood](#) is an incubator of promising research and development projects that appear likely to improve the welfare of young children, from infancy through 7 years, in the United States. Welfare is broadly defined to include physical and mental health, safety, nutrition, education, play, familial support, acculturation, societal integration and childcare.

The Foundation provides funding in the following areas:

1. **Early Childhood Welfare**

Children can only reach their full potential when all aspects of their

intellectual, emotional and physical development are optimally supported. Providing a safe and nurturing environment is essential as is imparting the skills of social living in a culturally diverse world. Therefore, the Foundation supports projects that seek to perfect child rearing practices and to identify models that can provide creative, caring environments in which all young 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 seven, and everywhere a child learns - at home, in childcare settings and in preschool. We seek 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, we support programs that teach parents about developmental psychology, cultural child rearing differences, pedagogy, issues of health, prenatal care and diet, as well as programs which provide both cognitive and emotional support to parents.

Letter of Intent deadline: January 31, 2020

[Track this program >>](#)

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EPA: Environmental Education Grants

The purpose of the [Environmental Education Local Grants Program](#) is to support locally-focused environmental education projects that increase public awareness and knowledge about environmental and conservation issues and provide the skills that participants in its funded projects need to make

informed decisions and take responsible actions toward the environment.

Under this solicitation, the Environmental Protection Agency (EPA) is seeking grant applications from eligible applicants to support locally-focused environmental education projects that promote environmental and conservation stewardship and help develop knowledgeable and responsible students, teachers, and citizens. This grant program provides financial support for projects that design, demonstrate, and/or disseminate environmental education practices, methods, or techniques, as described in this notice, that will serve to increase environmental literacy and encourage behavior that will benefit the environment in the local community(ies) in which they are located.

Applications must be submitted to the correct EPA Region that corresponds to the location of the project, which may not necessarily be where your organization is based.

Application deadline: January 6, 2020

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NEH: Public Humanities Projects

The National Endowment for the Humanities (NEH) [Public Humanities Projects](#) program supports projects that bring the ideas and insights of the humanities to life for general audiences through in-person programming. Projects must engage humanities scholarship to analyze significant themes in disciplines such as history, literature, ethics, and art history.

The program supports projects in three categories: **Exhibitions** (permanent, temporary, or traveling); interpretive programs at **Historic Places**; and **Humanities Discussions** related to "[A More Perfect Union](#)": NEH Special Initiative Advancing Civic Education and Commemorating the Nation's 250th Anniversary.

Application deadline: January 8, 2020

NIH: Dysregulation and Proximal Risk for Suicide (R21 Clinical Trial Optional)

A major goal of research on suicide is to improve our understanding of who is at most risk, why people transition from suicidal thoughts to action, and when to intervene ([Prioritized Research Agenda for Suicide Prevention, Short-term Objective 1.C](#)). Risk is a dynamic process and suicide attempts are often preceded by acute stressors. While many studies of suicide risk focus on emotion dysregulation, fewer studies have examined arousal and regulation and how these domains dynamically shape emotional and cognitive functions such as response to reward, frustrative non-reward, cognitive flexibility and control, or decision-making. Very few studies in the National Institute of Mental Health (NIMH) portfolio on suicide risk have focused on proximal risk. This Funding Opportunity Announcement ([FOA / RFA-MH-20-326](#)) will fund research that will address these gaps by providing an understanding of the mechanisms of how dysregulation interacts with Cognition and Negative and Positive Valence in order to determine time-varying risk, and then to identify modifiable targets for timely interventions during highrisk periods. This FOA uses the R21 mechanism. High risk/high payoff projects that lack preliminary data or utilize existing data may be most appropriate for the R21 mechanism, while applicants with preliminary data may wish to apply using the R01 mechanism, [RFA-MH-20-327](#).

Letter of Intent Deadline: January 13, 2020

Application deadline: February 13, 2020

NIH Notice of Intent to Publish: Research Answers to NCI's Provocative Questions

The National Cancer Institute (NCI) intends to publish [Funding Opportunity Announcements](#) in the Winter of 2020 to support research projects designed to solve specific problems and paradoxes in cancer research identified by NCI Provocative Questions Initiative. These problems and paradoxes phrased as questions are not intended to represent the full range of NCI's priorities in cancer research. Rather, they are meant to challenge researchers to think about and elucidate specific problems in key areas of cancer research that are deemed important and have not received sufficient attention. Some of these "Provocative Questions" (PQs) stem from intriguing but older, neglected observations that have never been adequately explored. Other PQs are built on more recent findings that are perplexing or paradoxical, revealing important gaps in current knowledge. Finally, some PQs reflect problems that traditionally have been thought to be intractable but that now may be open to investigations using new strategies and recent technical advances

The planned issuance of the PQ Initiative includes a new set of 9 PQs, listed below. Each research project proposed in response to these FOAs must be focused on addressing a specific PQ selected from the list. Additional information defining the research scope for responsive projects (the Intent Statement) will be provided in the FOAs and posted at provocativequestions.cancer.gov.

- PQ1: What are the underlying causes of the unexplained rising incidence in certain early-onset cancers?
- PQ2: How does intermittent fasting affect cancer incidence, treatment response, or outcome?
- PQ3: How do selective pressures affect cell competition and cooperation during cancer initiation or development?
- PQ4: What mechanisms explain sex differences in cancer incidence, lesion location, or response to therapy?
- PQ5: What strategies can block or reverse the emergence of new cell lineage states induced by cancer treatments?
- PQ6: How can cancer cachexia be reversed?
- PQ7: What methods can be developed to integrate patient-generated health data into electronic health records?

- PQ8: What strategies improve and sustain the coordination of comprehensive healthcare for underserved cancer patients with comorbid conditions?
- PQ9: What methods can be developed to effectively study small or rare populations relevant to cancer research?



NSF: Addressing Systems Challenges through Engineering Teams

The National Science Foundation (NSF) Division of Electrical, Communications and Cyber Systems ([ECCS](#)), through its ASCENT program [[NSF 20-511](#)], offers its engineering community the opportunity to address research issues and answer engineering challenges associated with complex systems and networks that are not achievable by a single principal investigator or by short-term projects and can only be achieved by interdisciplinary research teams. ECCS envisions a connected portfolio of transformative and integrative projects that create synergistic links by investigators across its three ECCS clusters: Communications, Circuits, and Sensing-Systems (CCSS), Electronics, Photonics and Magnetic Devices (EPMD), and Energy, Power, Control, and Networks (EPCN), yielding novel ways of addressing challenges of engineering systems and networks. ECCS seeks proposals that are bold and ground-breaking, transcend the perspectives and approaches typical of disciplinary research efforts, and lead to disruptive technologies and methods or enable significant improvement in quality of life.

- ASCENT supports fundamental research projects involving at least three collaborating PIs and co-PIs, up to four years in duration, with a total budget between \$1 million and \$1.5 million.
- ASCENT proposals must highlight the engineering leadership focus of the proposal within the scope of ECCS programs.
- ASCENT proposals must articulate a fundamental research problem with compelling intellectual challenge and significant societal impact. The

topic at the heart of the proposal must lie within the scope of at least one of the three ECCS clusters (CCSS, EPMD, EPCN). Research proposals spanning multiple clusters are highly encouraged.

- ASCENT proposals must demonstrate the need for a concerted research effort by an integrated and interdisciplinary team, and strongly justify the interdisciplinary nature of the proposed work. They should include a timeline for research activities, with a strong justification of the explicit mechanisms for frequent communication between team members and effective assessment to achieve proposed goals.

Letter of Intent deadline: January 07, 2020

Full Application deadline: February 19, 2020

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NSF: EPSCoR Research Infrastructure Improvement Track-4 - EPSCoR Research Fellows (RII Track-4) - 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 EPSCoR Track 4 : [Notify RCA](#) by 12/13/2019, 5:00 p.m. if you intend to apply.

The [RII Track-4 Fellows program](#) [NSF 18-526] provides an opportunity for *non-tenured* faculty to spend extended periods of time at the nation's premier research facilities. The fellowship period may be used to initiate new collaborative relationships, to expand existing partnerships in ambitious new directions, or to make use of unique equipment not available at the PI's home institution. Successful fellowships will positively impact and potentially

transform the recipient's research career trajectory. Any research topic eligible for consideration under NSF's policies will be considered for RII Track-4 support. The fellowship host site may be any academic, governmental, commercial, or non-profit research facility within the United States or its territories.

NDSU is allowed to submit three RII Track-4 proposals to NSF in response to this solicitation, so the Limited Submission process will apply.

Eligible PIs employed by degree-granting institutions of higher education must hold a ***non-tenured faculty appointment***. This may be in the form of a pre-tenure tenure-track position or a long-term non-tenure-track position. RII Track-4 awards will be made as standard grants. The award amount will not exceed \$300,000 and the project duration will not exceed 24 months. **Only single-PI proposals will be considered. No co-PIs should be included on the proposal.**

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NSF: Understanding the Rules of Life - Microbiome Theory and Mechanisms (URoL:MTM)

Understanding the Rules of Life (URoL): Predicting Phenotype is one of the National Science Foundation (NSF) 10 big ideas and is focused on predicting the set of observable characteristics (phenotypes) based on the genetic makeup of the individual and the nature of its environment. The Understanding the Rules of Life: Microbiome Theory and Mechanisms (URoL:MTM) program [NSF 20-513] is an integrative collaboration across Directorates and Offices within NSF. The objective of URoL:MTM is to understand and establish the theory and mechanisms that govern the structure and function of microbiomes, a collection of microbes in a specific habitat/environment. This may include but is not limited to host-associated microbiomes, such as those with humans and other organisms, where i) the microbiome impacts host physiology, behavior, development, and fitness; ii) the host influences the metabolic activity, dynamics and evolution of the microbiome, and iii) the environment (biological,

chemical, physical, and social) influences and is influenced by both the host and the microbiome.

The URoL:MTM program invites integrated, interdisciplinary proposals that develop theoretical predictive frameworks with well-designed experimental and/or computational approaches to generate and test hypotheses about the causal relationships within the microbiome, and among the microbiome, host, and environment. How these relationships affect robustness, resilience, and adaptability of individual organisms, populations, and communities are also of interest. Projects may apply existing ecological and evolutionary theory or develop new experimental, computational, or mathematical tools, models, and theory to: i) explain function and interactions in natural, experimental, and model microbiomes; ii) elucidate the molecular mechanisms that underlie communication between the host and the microbiome and among the members of the microbiome; and/or iii) comparatively analyze microbiomes to discover emergent properties that provide insight into the behavior of living systems.

Successful projects will contribute to a portfolio of research that identifies general principles ("rules") that underlie a wide spectrum of biological phenomena across spatial, temporal (from sub-second to geologic), and/or complexity (molecular, cellular, organismal, population) scales. URoL:MTM projects must integrate perspectives and research approaches from more than one research discipline (e.g., biology, chemistry, computer science, engineering, geosciences, mathematics, physics, social and behavioral sciences). They must also incorporate best practices regarding protocol documentation, sample selection, data collection and analysis, model/algorithm development, as well as data sharing and accessibility. The interdisciplinary scope of URoL:MTM projects should provide unique training and outreach opportunities to train the next generation of scientists in a diversity of scientific approaches and to engage society more generally.

URoL:MTM supports basic science research projects of different scales and scope. The URoL:MTM Program offers two submission tracks: Track 1 for projects with a total budget of up to \$500,000 and an award duration of up to 3 years and Track 2 for projects with a total budget of up to \$3,000,000 and award duration of up to 5 years.

Letter of Intent deadline: January 17, 2020

Full Application deadline: March 2, 2020

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Pardee Foundation: Cancer Research

The [Elsa U. Pardee Foundation](#) is inviting applications from investigators working at nonprofit institutions in the U.S. in support of innovative research aimed at identifying new treatments or cures for cancer.

The Foundation encourages proposals for a one-year period that allow all the capabilities of a new cancer researcher or new approach to cancer by an established cancer researcher to be established. The Foundation anticipates that this early-stage funding may lead to subsequent and expanded support from a government agency or other source. The relevance of the project to cancer detection, treatment, or cure should be clearly identified.

See the Elsa U. Pardee Foundation [website](#) for complete program guidelines, application instructions, and examples of previously funded research.

Application deadline: December 31, 2019

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William T. Grant Foundation: Reducing Inequality and Improving the Use of Research Evidence

The William T. Grant Foundation research grants program supports high-quality field-initiated studies that are relevant to policies and practices that affect the lives of young people ages 5 to 25 in the United States. Proposed research

must address questions that align with one of the Foundation's two focus areas:

[Reducing Inequality](#)

This focus area supports research to build, test, and increase understanding of approaches to reducing inequality in youth outcomes, particularly on the basis of race, ethnicity, economic standing, or immigrant origin status. The Foundation is interested in research on programs, policies, and practices to reduce inequality in academic, social, behavioral, and economic outcomes.

[Improving the Use of Research Evidence](#)

This focus area supports research to identify, build, and test strategies to ensure that research evidence reaches the hands of decision makers, responds to their needs, and is used in ways that benefit youth. The Foundation is particularly interested in research on improving the use of evidence by state and local decision makers, mid-level managers, and intermediaries.

Letter of Inquiry deadline: January 09, 2020

[Track this program >>](#)

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Proposal Development Program

The next session of the RCA Proposal Development Program will focus on **Proposal Budgets**. It will take place on **Tuesday, November 19** from **12:30-1:30pm** in the **Memorial Union Hidatsa Room**. [Register for this session >>](#)

The purpose of the Proposal Development Program is to provide a professional development opportunity for those new to proposal writing or those seeking a refresher to hone proposal writing skills and increase knowledge about funding agency opportunities. [Learn more and see upcoming sessions >>](#)

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NDSU Rodent Training Series

The final session of the NDSU Rodent Training Series will focus on **Venipuncture**. It will take place on **Wednesday, November 20** from **3-4:30pm** in **Van Es 107**. Space is limited so register early. [Register for this session >>](#)

The NDSU Rodent training series is a 4 course training series which covers basic mouse handling and techniques. The series is designed to provide foundational training and experience for faculty, staff, and students. The Rodent Training Series is sponsored by the Vice President for Research and Creative Activity. If you have questions about these sessions, please contact the IACUC Administrator, Josie Hayden, at 701.231.8114 or josie.hayden@ndsu.edu.

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National Council of University Research Administrators Education Program Workshops

Sponsored Programs is sponsoring webinars that are a part of the National Council of University Research Administrators (NCURA) education program. This is the final webinar of a 3-part series.

Financial Research Compliance Workshop:

The Financial Research Compliance workshop is a professional development opportunity that focuses primarily on the financial regulatory compliance aspects of Research Administration. This workshop provides an in-depth look at financial compliance issues through a combination of lecture, case studies, review of Federal audit reports, and a discussion of best practices.

Date: November 20, 2019

Time: 1:30PM – 5:00PM

Location: Research 1, Room 148/154

If you have any questions about these webinars, please contact the Sponsored Programs Office at ndsu.research@ndsu.edu or call 701-231-8045.



Showcase of Student Writing

The College of Arts, Humanities and Social Sciences has [invited](#) campus to attend the Showcase of Student Writing. The event is scheduled for Monday, December 5, from 10:00am-12:00pm in the Memorial Union Great Plains Room. Students across disciplines display and discuss their academic, creative, and professional writing.



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.

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