NDSU OFFICE OF RESEARCH AND CREATIVE ACTIVITY

RCA UPDATE

April 1, 2019

Undergraduate Research Mentor

Chad A. Ulven, Ph.D.

Mechanical Engineering

Describe your research interests/program:
Development and design of sustainable engineering grade composite materials based on natural fibers, bio-based polymeric resins, and combinations thereof.

How have undergraduates been involved in your research?
Typically my undergraduate research assistants work hand-in-hand with my graduate students but I also give each of them a project to call their own. This challenges them to think conceptually broader and use insight from one project to the next.

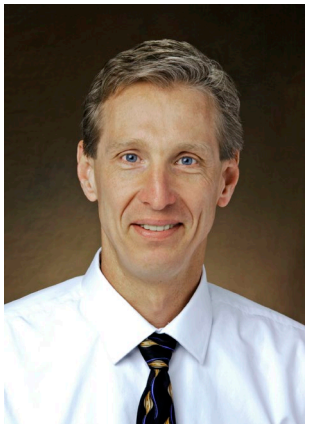
What is the best thing about being an undergraduate research mentor?
Seeing your work through a new and different set of eyes. There are

typically no preconceived notions of how things are going to work or be from this article or that short communication. They are often flying blind and that can either lead to some horrendous failures or surprising outcomes and breakthroughs.

Read more about Dr. Ulven and other Undergraduate Research Mentors at NDSU >>

Great Plains Cooperative Ecosystem Studies Unit

Federal agencies and academic institutions are just two of the participants in a national consortium of partners working together on resource stewardship through a network of Cooperative Ecosystem Studies Units (CESUs) which were authorized under the National Parks Omnibus Management Act of 1998. There are 17 separate CESUs representing biogeographic regions that include all 50 states and U.S. territories, with each CESU focusing on a specific ecosystem type. **NDSU is a member of the Great Plains Cooperative Ecosystem Studies Unit (GP CESU), with a primary focus on grasslands, ecosystems studies, and natural and cultural resource management.**



Edward (Shawn) DeKeyser was recently named as NDSU's technical representative for the GP CESU. Rod Lym had previously served in this capacity since NDSU joined the GP CESU in 2003. Dr. DeKeyser has had several grants through the GP CESU, and his role as the Natural Resources Management Lead at NDSU is ideally aligned with the GP CESU primary focus. As the technical representative, Dr. DeKeyser will review applications for membership in the GP CESU, as well as receive notices of funding opportunities available through the GP CESU. As a member of the GP CESU, NDSU is eligible to apply for funding that is allocated by member agencies for research, technical assistance, and education related to federal resource management issues. In addition to the opportunity to collaborate with various federal agencies on federal resource management issues, the CESUs emphasize benefits to graduate students through research, fieldwork and prospects for future employment.

Funding opportunities available through the CESU network can be found here: http://www.cesu.psu.edu/fundopps/fundopps.htm.

The Annual Meeting of the GP CESU is scheduled for April 30, 2019, from 9:30am-noon on the East Campus of the University of Nebraska-Lincoln. This meeting is open to any researchers with an interest in learning more about the CESUs. *RSVP for the Annual Meeting >>*

Congratulations to all award recipients from February 2019!
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 >>

The Research Integrity Administrators (IACUC, IBC & IRB) will be out of the office Monday, April 29-Thursday, May 1, 2019 while attending the Three I's and Biosecurity professional development conference. Please plan accordingly.

For questions during this time,
contact Neil Dyer [1-7830, neil.dyer@ndsu.edu]

Authorized Institutional Official/Signatory
Under NDSU Policy Section 800, the Vice President for Research and Creative Activity is the designated university representative to sign all external proposal and award documents. The VP has delegated signature authority for proposals and awards to Sponsored Programs Administration (SPA), with the Business Development office having signing authority for awards with private industry. In the event a signature from the Principal Investigator (PI) or other administrative

signature is required, SPA or Business Development will facilitate the additional signatures. For more information, see NDSU Policy Section 800.

Revised Human Subjects Regulations: Exemption Category 3 – Benign Behavioral Interventions

Find the regulatory criteria here.

Benign behavioral interventions are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the researcher has no reason to think the subjects will find the interventions offensive or embarrassing.

Examples include (but are not limited to):

- Having the subjects play an online game
- Having them solve puzzles under various noise conditions, or
- Having them decide how to allocate a nominal amount of “cash” or points between themselves and someone else.

If the research involves ***deceiving*** the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject prospectively agrees to participate in the research where they will be unaware of or misled regarding the nature or purposes of the research.

Key features –

- Permits benign behavioral interventions combined with data collected through verbal or written responses or audiovisual recording.
- May involve adults only.
- Requires Prospective Agreement.
- Deception only permitted when agreed to by the participant.
- Three stand-alone criteria to qualify:
    - Data is recorded such that subject identities cannot be readily ascertained, OR
    - Disclosure of data not likely to be harmful, OR
    - Identities can be ascertained but the IRB reviews (Limited IRB Review) the provisions to protect privacy and confidentiality.

For more information, visit our Resources page which contains links to SACHRP guidance and a new information sheet to use with projects qualifying under this new Exemption Category.

For questions, please contact Kristy Shirley (kristy.shirley@ndsu.edu; 231-8995).

RCA HIGHLIGHT

EXPORT CONTROL FAQs

Q: When would an export control license be needed / required for a foreign national to participate in University activities?

A: Generally speaking, the export control regulations permit U.S. universities to allow foreign nationals (e.g., students, faculty, academic appointees, and non-employee participants in University programs) to participate in fundamental research

projects without securing a license, provided there are no controls on publication or access restrictions. We may also share with foreign nationals in the U.S. or abroad 'technology' or ‘software’ that arises during, or results from, fundamental research and is intended to be published. This carve-out is known as the Fundamental Research Exclusion, or the FRE. The export control regulations also permit U.S. universities to release information by instruction, also without securing a license.

However, it is important to note that even in the conduct of fundamental research and instruction, an export control license may be required if the project involves the exchange of export-controlled information, access to export-controlled technology, a non-research function (e.g., a service agreement) where there is access to export-controlled technology, or access to ITAR-controlled equipment.

Have more questions? Contact the export control administrator [ndsu.exportcontrols@ndsu.edu / 231-6455] or visit the NDSU export control website.

Significant Financial Interest (SFI) Disclosures for Grant Submissions

If you are planning to submit a grant proposal April 29-May 2, please ensure that your Significant Financial Interest (SFI) disclosure is current. This will avoid delays in the process while the Research Integrity Administrators are out of the office. SFI disclosures are valid for 12 months.

Please contact Julie Sherwood [231-8908, j.sherwood@ndsu.edu] with any questions.

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Looking for Collaborators? Visit the NDSU Scholars Database

In Search of Equipment? Check the NDSU Equipment Database

pivot™ funding connected

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

DOE: Early-Stage Solar Research

The Solar Energy Technologies Office Fiscal Year 2019 (SETO FY2019) funding program (DE-FOA-0002064) will provide $130 million in funding for up to 80 projects that will advance research in solar energy technologies. The funding program will target five research areas:

- photovoltaics (PV),
- concentrating solar-thermal power (CSP),
- soft costs reduction,
- innovations in manufacturing, and
- solar systems integration.

These projects will help achieve the solar office's goal of improving the affordability, reliability, and performance of solar technologies on the grid. Learn

more about SETO's goals.

Several topic areas in this funding program encourage collaborative work to enable and accelerate outcomes. SETO seeks diverse teams comprising members of companies and community organizations, researchers, solar developers, and other stakeholders who work across various technology sectors, locations, and scientific disciplines. Note that cost-share is required for this program.

SETO will host six webinars April 2-5: one discussing the program as a whole, and one for each of the five topics.

Funding Program Overview:	April 2, 2019 2:00 p.m. ET
Photovoltaics:	April 3, 2019 3:00 p.m. ET
Concentrating Solar-Thermal Power:	April 4, 2019 2:00 p.m. ET
Balance of Systems Soft Costs:	April 5, 2019 2:00 p.m. ET
Innovations in Manufacturing:	April 4, 2019 4:00 p.m. ET
Systems Integration:	April 3, 2019 2:00 p.m. ET

Letter of Intent Deadline: May 7, 2019; Concept Paper Deadline: May 14, 2019; Full Application Deadline: July 25, 2019.

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NASA: Terrestrial Hydrology Research

The NASA Terrestrial Hydrology program (THP) has the scientific objective to use remote sensing to develop a predictive understanding of the role of water in land atmosphere interactions and to further the scientific basis of water resources management. The NASA THP is a component of the Global Water and Energy Cycle Focus Area. THP uses NASA's unique view from space to study hydrologic processes associated with runoff production, hydrologic fluxes at the land-air interface, and terrestrial water stores. THP works in concert with other Earth Science Division (ESD) programs, also studying the global water cycle (e.g., precipitation, physical oceanography), to describe and understand the connections between the cycle's different parts. THP fosters the

development of hydrologic remote sensing theory, the scientific basis for new hydrologic satellite missions, hydrologic remote sensing field experiments, and the interface of hydrology with other disciplines, such as those addressed by the Terrestrial Ecology program and Interdisciplinary Science. Particular emphasis is placed on the application of satellite-based remotely sensed data for characterizing, understanding, and predicting the terrestrially linked components of the hydrologic cycle and the dynamics of large-scale river basins. THP furthers study of the relationship between satellite interferometric measurements of surface deformation and changes in underground water stores. THP is currently focused on research relating to multiple missions, such as Global Precipitation Measurement (GPM), Soil Moisture Active Passive (SMAP) and the Gravity Recovery and Climate Experiment Follow-On (GRACE-FO).
Proposed research must fall into one of the following three categories:

- 2.1 Multi-Sensor Data Fusion
- 2.2 Land Model Improvement
- 2.3 Hydrological Test Bed Scoping Studies

Notice of Intent deadline: September 26, 2019; Full Proposal deadline: November 14, 2019

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Network for Landscape Conservation: Landscape Conservation Catalyst Fund

The Network for Landscape Conservation (NLC) has released this Request for Proposals (RFP) for the *new* Landscape Conservation Catalyst Fund. The purpose of the Landscape Conservation Catalyst Fund is to accelerate the pace and effective practice of place-based, collaborative landscape conservation across the United States. The Fund specifically seeks to build critical capacity and forward momentum in landscape conservation partnerships by supporting the key building block activities and collaborative processes that move partnerships forward. Applicants may request a one- or two-year grant of

$10,000 -$25,000. The Network for Landscape Conservation is a fiscally sponsored project of the Center for Large Landscape Conservation in Bozeman, MT.

Pre-proposal deadline: April 26, 2019; Full proposal deadline: July 1, 2019

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NIJ: National Juvenile Justice Data Analysis Program

The National Institute of Justice (NIJ) seeks proposals for funding to ensure that vital statistical information is available to the field regarding juvenile risk behaviors, juvenile victimization, juvenile offending, and the juvenile justice system's response to law-violating behavior. The successful applicant will accomplish this by supporting and enhancing the National Juvenile Justice Data Analysis Program through innovative analysis of complex data and issues, and dissemination strategies that advance the relevance, utility, and accessibility of national juvenile justice data for the juvenile justice community and the public. NIJ and the Office of Juvenile Justice and Delinquency Prevention (OJJDP) are committed to making significant advances in the way these data are analyzed and made available to inform juvenile justice policy and practice at the federal, state, and local levels. Funding under this solicitation will support a program to assemble juvenile justice-related data sets; analyze and report on complex data and issues; and develop publications and online resources to make juvenile justice data easily accessible to the juvenile justice community and the public. The successful applicant will also work collaboratively with NIJ and OJJDP to further develop and implement new and innovative dissemination strategies and tools that facilitate access to and use of juvenile justice-related data. Among other factors in making award decisions, NIJ will consider how an award may broaden the pool of researchers and research entities involved in advancing the relevance, utility, and accessibility of national juvenile justice data. NIJ will also consider to what degree an award will introduce fresh, cutting-edge perspectives to this important area of research. This solicitation supports the NIJ's priority of promoting public safety and reducing crime by producing and disseminating statistical information on a

range of topics related to juvenile crime, victimization, and the juvenile justice system.

Application deadline: May 20, 2019

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NSF: Broadening Participation in Engineering (BPE)

NSF seeks to strengthen the future U.S. Engineering workforce by enabling the participation of all citizens through the support of research in the science of Broadening Participation in Engineering (BPE). The BPE program is dedicated to supporting the development of a diverse and well-prepared engineering workforce. BPE focuses on enhancing the diversity and inclusion of all underrepresented populations in engineering, including gender identity and expression, race and ethnicity (African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders), disability, LGBTQ+, first generation college and socio-economic status. BPE funds research to:

- understand and analyze the systemic barriers that prevent underrepresented groups from pursuing and succeeding in engineering, for example, understand the problem of insufficient interest and poorly sustained participation in engineering across underrepresented demographic groups; insignificant preparation and scarce opportunities for members of underrepresented groups to learn meaningful, relevant engineering content;
- understand and analyze factors that enhance our ability to increase access to engineering by creating support systems and social networks that raise career awareness about different engineering pathways;
- develop innovative methods and projects to significantly impact the recruitment and retention of engineering students from underrepresented groups. Activities must be supported by relevant data and have the capability to produce a model that can be replicated in other contexts;

- develop innovative methods and projects to aggressively recruit and retain tenure track faculty from underrepresented groups; and
- design and transform culture to make diversity, equity, and inclusion a priority in the engineering enterprise.

BPE research activities will provide scientific evidence that engineering educators, employers, and policy makers need to make informed decisions to design effective programs that broaden the participation of persons from historically underrepresented groups in the engineering workforce. BPE is interested in funding research that spans K-12 to workforce and offers the greatest return on investment.

Full Proposals Accepted Anytime. For additional information regarding the removal of deadlines for this program, please refer to the Dear Colleague Letter and Frequently Asked Questions.

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NSF DCL: Convergence Accelerator Pilot

The National Science Foundation (NSF) invites interested parties to participate in a new endeavor, the NSF Convergence Accelerator (NSF C-Accel) Pilot. With this Dear Colleague Letter (DCL), NSF's goals are to:

- pilot a new NSF capability (the NSF Convergence Accelerator) to accelerate use-inspired convergence research in areas of national importance, and
- initiate convergence team-building capacity around exploratory, potentially high-risk proposals in three convergence topics (tracks).

NSF is planning to fund approximately 50 Phase 1 awards (up to 9 months and up to $1 million each). Additional funds will be available for a smaller number of Phase 2 awards.

The NSF C-Accel Pilot consists of three tracks:

- ***Track A1:*** Open Knowledge Network
- ***Track B1:*** Artificial Intelligence (AI) and Future Jobs
- ***Track B2:*** National Talent Ecosystem

Each track is aligned with one of NSF's 10 Big Ideas: Track A1 is aligned with Harnessing the Data Revolution (HDR), and Tracks B1 and B2 are aligned with the Future of Work at the Human-Technology Frontier (FW-HTF). These tracks also align with Administration R&D Priorities including leadership in artificial intelligence (see July 2018 memo M-18-22), the President's Management Agenda (see Cross Agency Priority Goals), and the U.S. 5-Year STEM Education Strategic Plan. The NSF C-Accel Pilot's tracks focus on use-inspired research with relatively short timeframes for deliverables and are intended to leverage partnerships. The tracks build upon existing convergence research with the intention of accelerating discovery and innovation, leading to deliverable research products.

Submit a 2-page Research Concept Outline (RCO), aligned with one of the tracks described, with a target submission date of April 15, 2019.

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NSF DCL: Research at the Intersection of Agricultural Science, Big Data, Informatics, & Smart Communities

The National Science Foundation (NSF) has issued a Dear Colleague Letter (DCL) regarding a joint effort between NSF and the U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA). They plan to jointly fund convergent research that combines methods in agricultural, biological, and computer and information science and engineering to address pressing challenges and opportunities in digital agriculture. This DCL is aligned with NSF's Harnessing the Data Revolution Big Idea, and aims to build capacity across disciplinary boundaries, in preparation for larger scale investments at the intersection of computational, agricultural, and biological sciences.

Specific topics of interest include, but are not limited to, the following:

- Methods for analyzing existing large datasets, such as artificial intelligence, machine learning, and computer vision, for example, leveraging environmental, imaging, and genomic data;
- Models for genetic x environment x management x socioeconomic interactions (G x E x M x S) in order to predict livestock, aquaculture, and plant phenotypic outcomes and sustainability—such as yield, survivability, resistance to environmental stressors, pest resistance, drought resistance, and nutritional value;
- Data storage, management, and integration across a range of data types to enable a systems-level approach, including integration of big data in real-time systems;
- Wired and wireless networking challenges in rural settings, including computation at the edge;
- Security, privacy, and management for access and sharing of farm and community data; and
- Learning science innovations, which may include development of computational skills for biological and agricultural science majors, and communities of agricultural practice for a diverse and innovative future workforce.

Proposals pursuant to this DCL may be submitted to one of the three programs listed below:

- Cyber-Physical Systems (CPS) program;
- Information and Intelligent Systems (IIS): Core Programs—Information Integration and Informatics (III) program; and
- Smart and Connected Communities (S&CC) program.

Deadlines vary by program.

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Simons Foundation: Targeted Grants in Mathematics and Physical Sciences

The Simons Foundation works to advance the frontiers of research in mathematics and the basic sciences. The Foundation is accepting applications for its Targeted Grants in Mathematics and Physical Sciences (MPS) program, which supports projects of exceptional promise and scientific importance in theoretical mathematics, physics, and computer science with flexible funding for up to five years. Although the emphasis of the program is theory, projects with some experimental components may be considered. Principal investigators and co-investigators must have a PhD and a tenure-track or tenured position at an established U.S. or foreign public or private educational institution or standalone research center. There are no citizenship or department requirements for principal investigators.

Application deadline: December 30, 2019 (rolling)

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William T. Grant Foundation: Reducing Inequality Research

The William T. Grant Foundation supports high-quality field-initiated studies relevant to policies and practices that affect the lives of young people between the ages of 5 and 25 in the United States. Investigations into various systems, including justice, housing, child welfare, mental health, and education are encouraged. The program seeks research that builds, tests, and increases understanding of approaches to reducing inequality in youth outcomes, especially on the basis of race, ethnicity, economic standing, language minority status, and/or immigrant origins and is also interested in research dedicated to programs, policies, and practices designed to reduce inequality in academic, social, behavioral, and economic outcomes. The Foundation does not have a preference for a particular research design or method. Grants typically range between $100,000 and $600,000 over two to three years. In addition to

financial support, grantees receive significant time and capacity-building assistance from the Foundation.

Letter of Inquiry deadline: May 1, 2019; Selected applicants will be invited to submit full proposals

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Mark your calendar for NDSU EXPLORE

NDSU EXPLORE encourages and celebrates the research and creative accomplishments of NDSU undergraduates. Plan to attend to support the students and learn about their exciting research activities!

Morning Student Presentation Session
Thursday, April 11, 2019 | 9:30 a.m. -11:30 a.m. | Memorial Union, 2nd Floor

Afternoon Student Presentation Session
Thursday, April 11, 2019 | 1:00 p.m. -3:00 p.m. | Memorial Union, 2nd Floor

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Veterinary & Public Health Implications of Tuberculosis

Sarah Bailey, DVM, MPH, CPH(p), the North Dakota Assistant State Veterinarian, will be on campus on Wednesday, April 17, 2019, to present a seminar on the veterinary and public health implications of tuberculosis. Mark your calendars and plan to attend:

Wednesday, April 17, 2019
2-4pm
Van Es 101

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Save the Date: NDSU IACUC Rodent Training Series Session 4: Breeding and Genotyping

NDSU's Institutional Animal Care and Use Committee (IACUC) is offering a series of rodent training sessions. The next session's topic will be "**Breeding and Genotyping**." This session will take place **Thursday, April 25, 2019**, from **3-4:30pm**.

This training is open to faculty, staff, and students. Participants must be able to competently restrain a mouse.

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NIH Grant Writing Workshops

On April 25, Dr. Meg Bouvier [Meg Bouvier Medical Writing] will present three workshops:

How to Write an NIH R-Series Application
Thursday, April 25, 2019 | 8am-1pm | Memorial Union Hidatsa Room
The target audience for this session is NIH R01 and R15 grant program applicants.
This workshop will cover the following topic areas:

- **Preparation:** *Key steps to take before you write a successful NIH submission*
- **Specific Aims**: *How to write the most important page of an NIH submission*
- **Significance and Innovation:** *How to "sell" your project to NIH reviewers*
- **Approach:** *How to write the section that correlates most closely with your overall score*

Mistakes Commonly Made on NIH Submissions
Thursday, April 25, 2019 | 1pm-2pm | Memorial Union Arikara Room
This lunch-time session covers mistakes commonly made on NIH submissions, and will include a question and answer period with Dr. Bouvier.

Building Your Biomedical Research Funding Portfolio
Thursday, April 25, 2019 | 2pm-3pm | Memorial Union Hidatsa Room
This session will discuss funding options including those outside NIH that could help build and diversify your funding portfolio.

Seating is limited, and priority will be given to faculty.
Registration is required.

Register for a workshop >>

These workshops are co-sponsored by the Research and Creative Activity Office and the Center for Diagnostic and Therapeutic Strategies in Pancreatic Cancer.

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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.