

BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

Research, Economic Development, & Innovation Committee

Thursday, April 7, 2022
10:45 a.m. to 12:00 p.m.

Room 374, Dreyfus University Center
1015 Reserve Street
UW-Stevens Point Campus
and Via Webex Videoconference

- A. Call of the Roll
- B. Declaration of Conflicts
- C. Approval of the Minutes of the February 10, 2022, Meeting of the Research, Economic Development, and Innovation Committee
- D. 2022 UW System Regent Scholar Grants
- E. UW-Stevens Point Presentation on Building Prosperous Communities Through Research, Collaboration, and Innovation

April 7, 2022

2022 REGENT SCHOLAR GRANTS

REQUESTED ACTION

Information only.

SUMMARY

The UW System Regent Scholar program provides prestigious, one-time grants to individual faculty or campus programs that undertake undergraduate research projects that foster innovation, entrepreneurship, and talent development.

Formally introduced in 2014, the program is designed to stimulate faculty-student collaborative research. Eligibility is open to all UW System universities, supporting entrepreneurial ideas and innovative projects with the goals of:

- Providing summer funding to support faculty engagement in research and other scholarly activities;
- Promoting stellar research experiences for undergraduate students, thus preparing a high-quality workforce;
- Stimulating research across all UW System campuses, ultimately driving regional economic development; and
- Recognizing superior and undergraduate research in the STEM disciplines and creative arts field.

Presenters

- Bob Atwell, REDI Committee Chair
- Cris Peterson, Regent Scholar Program Chair

BACKGROUND

Faculty from across the UW System submitted entries for consideration. These submissions were evaluated by a committee of reviewers with a background in technology, science, and business. The 2022 team included the following experts:

Program Oversight:

- Arjun Sanga and Dr. Adhira Sunkhara, WiSys

Project Evaluators:

- Dr. Tracy Davidson, Director, STEM and Applied Research Initiatives, UW System
- Darin Driessen, Managing Director, Georgia-Pacific
- Preeti Guptan, Manager, External Innovation, Promega Corporation
- Danielle Jones, Director of Rural Initiatives, Wisconsin Economic Development Corp.
- Jeff Prochnow, Senior Director, SCJ New Ventures, a Johnson Wax affiliate

The evaluation team selected three recipients to receive the highest honor for faculty achievement of undergraduate research projects that foster innovation, entrepreneurship, and talent development. The recipients are as follows:

2022 UW System Regent Scholar Grants

Dr. Todd Hillhouse

Assistant Professor of Psychology
University of Wisconsin-Green Bay

Research Summary: Targeting Nociceptin and Kappa Opioid Receptors for Treatment of Cocaine Addiction and Depression

More than 8 percent of the population meets the criteria for substance use disorder (i.e., addiction), and those with substance use disorders have a significantly higher prevalence of depression (up to 48 percent) as compared to the normal population (less than 15 percent). Agonist replacement therapies are the first line of treatment for addiction; however, they are not overly effective and do not eliminate addiction. This research grant proposal focuses on discovering and developing novel drugs for the treatment of addiction and depression as there are many overlaps between the disorders, and they likely share biological underpinnings. The proposed research is innovative in its approach to treat addiction through a neurotransmitter system that is separate from the drug of abuse.

Project Impact:

This project will provide ample research opportunities for motivated undergraduate students through two paid research assistant positions and will provide an opportunity for an additional three to six undergraduate students to enroll in individualized instruction credits to work on this project.

The award will also help establish a new research lab on the UW-Green Bay campus, which will train and develop talented local students for the biomedical industry and could ultimately result in three to six students entering the local/regional workforce with in-demand skills each year. Successful preliminary results and future collaborations could result in National Institutes of Health (NIH) research proposal submissions which would provide further job/research opportunities for undergraduate and graduate students at both the Green Bay and Madison campuses.

Dr. John Chan

Assistant Professor of Biochemistry
University of Wisconsin Oshkosh

Research Summary: A Novel Chemotherapy to Treat Parasitic Flatworms Causing Human and Animal Disease

The objective of this proposal is to optimize a novel chemical compound that Dr. Chan and collaborators have discovered, which cures parasitic flatworm infections. Currently, broad spectrum control of parasitic flatworm infections in both human and animal health markets is dependent on one drug, praziquantel. No new drugs have been developed since the 1970s, and reliance on a single treatment presents the serious threat of emerging drug resistance.

Dr. Chan's group is investigating a novel series of antiparasitic compounds that can serve as praziquantel alternatives. The new compounds also have been shown to cure parasite infections in a mouse animal model. This research will help to provide avenues for further exhaustive exploration that will lead to preclinical development of new treatments.

Project Impact:

Development of new antiparasitic drugs from this project will support the Wisconsin workforce both in the licensing and manufacturing of pharmaceuticals, as well as benefiting the end users in the Wisconsin agricultural community.

Dr. Chan runs an active research laboratory and mentors students in the McNair Scholars Program. This project provides training opportunity for students in molecular biology, microscopy, organic chemistry, and proper handling and husbandry of laboratory animals. Funding will support a master's degree graduate assistantship and an undergraduate researcher at UW Oshkosh, as well as an undergraduate researcher at UW-Milwaukee.

This project builds on the productive collaboration between Dr. Chan at UW Oshkosh and Dr. James Cook at UW-Milwaukee. Additionally, they will work with collaborators from Iowa State University College of Veterinary Medicine, the Institute for Global Food Security, Queen's University Belfast, and NIH-NIAID Filariasis Research Reagent Resource Center, who are all conducting research on various parasitic worms of veterinary importance.

Dr. Mark Levenstein

Assistant Professor of Biology
University of Wisconsin-Platteville

Research Summary: Aryl Fluorinated Ethers to Develop the Next Generation of Agrochemicals

A changing climate coupled with the growing phenomenon of pesticide resistance represents a significant threat to the continued production of high yield crops. This research effort aims to develop a new generation of highly effective agrochemicals. The Principal Investigator and collaborators have developed a novel, photocatalytic, chemical technique for synthesizing fluorinated compounds with the potential to improve the functionality of existing agrochemicals and to fuel the development of a new generation of biological agents with improved potency, increased longevity, and reduced environmental signatures. This novel approach circumvents the current reliance on harsh conditions, dangerous and expensive chemicals, and produces industrially relevant yields. Under the proposed project, the team aims to determine the biological activity of Griseofulvin, an FDA-approved anti-fungal agent, and compare it to its enhanced, fluorinated form.

Project Impact:

Pesticide resistance is particularly important in the state of Wisconsin where agriculture contributes to more than \$104 billion (16.4 percent) annually to the economy and accounts for nearly 12 percent of the state's workforce. This project focuses on the development of new agrochemicals for crop protection, an increasingly vital area of research.

Pharmaceutical development has made significant gains through the adaptation of photochemical methods; the researchers anticipate that agrochemical development will soon follow suit, indicating strong start-up and industry partnership potential.

Funds from this grant will provide six undergraduate students with summer research experiences in Biology and Chemistry, focused on the development and testing of a new class of antifungal chemicals.

April 7, 2022

**UW-STEVENS POINT PRESENTATION ON BUILDING
PROSPEROUS COMMUNITIES THROUGH RESEARCH,
COLLABORATION, AND INNOVATION**

REQUESTED ACTION

For Information Only

SUMMARY

With its roots in the heart of the state, the University of Wisconsin-Stevens Point is focused on providing students with transformational learning in the arts and sciences. The open-minded, close-knit UW-Stevens Point community inspires students to experience the world unfolding in new ways. Through its numerous and growing partnerships with business and community stakeholders, UW-Stevens Point works to solve problems and to leverage opportunities for growth and innovation.

Presenters:

- Brianna Tucker, Regent and UW-Stevens Point Student
- Dr. Brian Sloss, Dean, College of Natural Resources
- Chelsea Dresen, UW-Stevens Point Student, EdD and Master of Natural Resource
- John Gonzales, UW-Stevens Point Student, BA Drama and BA Art
- Abigail Kreger, UW-Stevens Point Student, BS, College of Natural Resource

BACKGROUND

The University of Wisconsin-Stevens Point is dedicated to providing a “Purpose Driven Education” in every aspect of its programming and approach. Faculty and staff embrace this guiding principle in all aspects of their professional lives and in service to students, communities, and professions. UW-Stevens Point is consistently rated as the leading regional comprehensive in Wisconsin in terms of extramural research and public service grants, a key factor in funding a wide diversity and number of high impact practices for students. In 1946, UW-Stevens Point established the nation’s first conservation education major which ultimately evolved and diversified into the College of Natural Resources (CNR). Today, the university is well-known for its conservation and sustainability focus and culture.

The UW-Stevens Point mindset of sustainability goes well beyond the walls of the CNR. Across all four of the university’s degree-granting colleges, more than 25 majors, options, minors, and certifications offer a significant sustainability focus and professional pathways.

The “Purpose Driven” approach embedded in campus culture and day-to-day life is reflected in the UW-Stevens Point STARS Silver rating from the Association for the Advancement of Sustainability in Higher Education (AASHE), the university’s consistent presence on the Princeton Review Green College Honor Roll, and in UW-Stevens Point being the first university in the state to attain 100% renewable electricity generation. The REDI discussion will highlight these achievements and provide examples of students working with Wisconsin businesses and community stakeholders to advance sustainability and conservation.