

01/28/2015

BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

I.4. Research, Economic Development,
and Innovation Committee

Thursday, February 5, 2015
8:45 am – 10:30 a.m.
Union South, Varsity Hall II
UW-Madison
Madison, WI

- a. Approval of the Minutes of the December 4, 2014, Meeting of the Research, Economic Development, and Innovation Committee
- b. Regent Scholar Award Presentation
- c. UW-Extension Division of Business and Entrepreneurship Update
- d. Wisconsin Economic Development Corporation (WEDC) – Statewide Network and Regional Partnership Update
- e. A High-level Overview and Illustration of UW-Madison’s Research Enterprise

REGENT SCHOLAR AWARD PRESENTATION

BACKGROUND

In 2014, the REDI Committee introduced the UW System Regent Scholar grant program to recognize and reward individuals and campus programs that undertake innovative undergraduate research projects with the potential to lead to job creation and economic development. The program was designed to help fill needs identified through UW System discussions focused on making it easier for faculty to work outside the classroom and providing financial support to make it possible. The Regent Scholar program allocates one-time funding, primarily in the summer months, for faculty to engage in research and other scholarly activities while stimulating industry outreach and innovation across a wide spectrum of academic pursuits.

REQUESTED ACTION

For information only.

DISCUSSION

The initial call for Regent Scholar entries drew 32 applications from faculty and their business collaborators from across the state. Ultimately, a committee of UW System and outside evaluators selected five grant recipients to receive Regent Scholar awards this year. The inaugural Regent Scholars will be honored at today's meeting.

The 2015 Regent Scholar grant recipients include:

UW-Eau Claire, Dr. Jennifer Dahl (\$50,000 grant)

- **Janus nanoparticles: A practical pathway toward functional materials for efficient photovoltaics, optical circuits, and nanomedicine**
- **Project description:** Working with undergraduate researchers, this project will focus on the creation of cross-linked Janus nanoparticle networks that will foster multiple new technologies and applications. These include nanoparticle-based films that increase the efficiency of inexpensive solar-cell materials and the usefulness of integrated optoelectronic circuits, and which also support the development of customized, anti-cancer treatments.

UW-La Crosse, Dr. Heather Schenck (\$36,706 grant)

- **Rotation barriers in hydroxamic acids: Optimization of metal-building molecules for medical and industrial applications**
- **Project description:** Hydroxamic acids are small chemical structures used in medicine and industry. These materials bind metals and are used for processing of ores and for removing excess iron from blood. They are also used in cancer chemotherapy and contemplated for use in the treatment of viral and bacterial infections. Undergraduate researchers will focus on activities that involve chemical synthesis and nuclear magnetic resonance spectroscopy. Both skills are essential for chemical professionals.

UW-Milwaukee, Dr. Junhong Chen (\$50,000 grant)

- **Smart phone-supported sensors for real-time monitoring of heavy metal ions in water**
- **Project description:** The project focuses on engaging undergraduate students in developing a prototype smart phone-supported sensor for low-cost, real-time monitoring of heavy metal ions in water. The project will also benefit water industries and smartphone makers by enabling additional real-time sensing capabilities with smart phones to increase product performance, market share, and most importantly, to create or retain jobs in Wisconsin.

UW-River Falls, Dr. Tim Lyden (\$50,000 grant)

- **Development and testing of a new miniature bioreactor system prototype as an enabling technology for the "Living Biopsy" approach to cancer research and diagnosis**
- **Project description:** The project couples scientific insights from 3-D artificial tissue generation research done with undergraduate researchers at the UW-River Falls Tissue and Cellular Innovation Center with an existing technology from industrial partner Microscopy Innovations, LLC of Marshfield, Wis. This technology will facilitate screening and testing of therapeutic approaches to cancerous tumors. The initiative additionally supports biotechnology start-up company Artificial Tissue Systems, LLC, in western Wisconsin.

UW-Stevens Point, Dr. Christopher Hartleb (\$50,000 grant)

- **Aquaponics innovation through undergraduate education and discovery**
- **Project description:** Aquaponics, or integrated fish and soil-less plant production, represents a transformational global business opportunity for small- and large-scale food production. The goal of the project is to provide research experience for undergraduates while preparing a high-quality workforce for the growing aquaponics industry, focused on food safety, locally grown products, and sustainable harvesting practices. Private-sector partners include Northside Enterprises, which has developed a fast growing, hybrid walleye for Wisconsin's aquaponics industry, and Nelson and Pade, Inc.®, a national leader in aquaponics.

RELATED REGENT POLICIES

Not applicable.

UW-EXTENSION DIVISION OF BUSINESS AND ENTREPRENEURSHIP UPDATE

BACKGROUND

The UW-Extension Division for Business and Entrepreneurship represents a collection of organizations providing education and information to support business creation, growth and performance. It does this through partnerships with federal and state government entities, UW System institutions, and local business support organizations.

Organizations in the Division include the Small Business Development Center Network, the Center for Technology Commercialization, The Center for Business Intelligence, The Food Finance Institute, and the Manufacturing Diversity Institute. All of these groups coordinate their efforts to support and complement the work done by WEDC, UW System institutions, and local/regional business support groups.

REQUESTED ACTION

For information only.

DISCUSSION

UW Colleges and UW-Extension Chancellor Cathy Sandeen will introduce Mark Lange, Executive Director, Business and Entrepreneurship, who will provide an update on his organization's initiatives and programs. He will also provide information about the "Wisconsin Core Business Economy" and new economic and business research resources now available to UW System institutions.

Additional presenters will include:

- Bon Wikenheiser – State Director, SBDC and CTC
- Tera Johnson – Director, Food Finance Institute

RELATED REGENT POLICIES

Not applicable.

**WISCONSIN ECONOMIC DEVELOPMENT CORPORATION (WEDC) – STATEWIDE
NETWORK AND REGIONAL PARTNERSHIP UPDATE**

BACKGROUND

The UW System and the Wisconsin Economic Development Corporation (WEDC) continue to strengthen and expand partnership initiatives designed to identify and leverage collaborations and initiatives that accelerate innovation, entrepreneurship, and workforce development. WEDC provides regular updates to the REDI Committee on current and planned initiatives and provides progress reports on outcomes.

REQUESTED ACTION

Information only.

DISCUSSION

Secretary and CEO Reed Hall will open with brief remarks before introducing Tricia Braun, WEDC's Vice President of Economic and Community Development. She will provide an update on current initiatives and programs, with a focus on WEDC's efforts to collaborate with the university and with state businesses and economic development organizations to build stronger communities and to support opportunities for job creation.

RELATED REGENT POLICIES

Not applicable.

A HIGH-LEVEL OVERVIEW AND ILLUSTRATION OF UW-MADISON'S RESEARCH ENTERPRISE

BACKGROUND

As the state's largest research enterprise, UW-Madison expends more than \$1 billion annually to support discovery and innovation processes. Faculty, staff, and students explore the far reaches of science (physical, biological, and social), technology, and the arts and humanities in an effort to further research and innovation. The university continues to expand and broaden the scope of its initiatives supporting these important efforts across its broad range of academic disciplines.

These research efforts contribute significantly to UW-Madison's status as a primary generator of economic and business development for the state of Wisconsin.

REQUESTED ACTION

Information only.

DISCUSSION

The UW-Madison research enterprise is the product of over 100 years of state and federal investments during which time the university has remained focused on:

- Improving people's lives—the quality and quantity of life for Wisconsinites and others.
- Improving the teaching and learning of students—focused on student outcomes/success.
- Growing the state's economy—As a Federal Land Grant institution, this is in the university's DNA; it is fundamental to its mission.

Those investments, this focus, and the hard work and creativity of UW-Madison's faculty, staff, and students, have resulted in:

- Strong undergraduate and graduate student research and entrepreneurship programs.
- Statewide outreach efforts that bring the university's resources and knowledge to businesses, researchers, non-profits, healthcare providers, farmers, local government, and others across the state.
- Ground-breaking discoveries and innovations that result in about 350 patent disclosures annually. Of these, 200 new patents are subsequently pursued and issued. About 55 are licensed (new) and generate additional economic impact. Each year, between three and five new companies are created directly from this process.
- UW-Madison's being consistently ranked in the top five of all US universities in terms of research expenditures. Those expenditures ripple through the state's economy creating additional jobs and income.

The following presenters will provide an overview and update:

- Steve Ackerman, Associate Vice Chancellor for Research-Physical Sciences, Professor, Department of Atmospheric and Oceanic Sciences, and Director, Cooperative Institute for Meteorological Satellite Studies

Associate Vice Chancellor Ackerman will share background information and updates on UW-Madison's research enterprise and introduce a clip from a video created by Storybridge that highlights research and innovation at the UW-Madison Science, Space, and Engineering Center and was shown on the Big Ten Network. The full video may be found at:

<https://www.youtube.com/watch?v=cjRl1EO41aY&feature=youtu.be>

- Ms. Jacola Roman, PhD student in Atmospheric and Oceanic Sciences at UW-Madison, will share information regarding her current research, which focuses on improving the forecasting of extreme flooding events. Improved forecasting may allow cities and businesses to better prepare for damages, injuries, and the financial and socioeconomic costs they bring.

RELATED REGENT POLICIES

Not applicable.