

CONFERENCE PROGRAM

8:00 a.m. to 8:30 a.m.	Registration	Valhalla Cartwright Center
8:30 a.m. to 8:40 a.m.	Welcome	Valhalla Cartwright Center
8:45 a.m. to 9:15 a.m.	Presentations	3 rd floor Cartwright Center
9:20 a.m. to 9:50 a.m.	Presentations	3 rd floor Cartwright Center
9:50 a.m. to 10:15 a.m.	Break (coffee)	Valhalla Cartwright Center
10:20 a.m. to 10:50 a.m.	Presentations	3 rd floor Cartwright Center
10:55 a.m. to 11:25 a.m.	Presentations	3 rd floor Cartwright Center
11:30 a.m. to 12:00 p.m.	Presentations	3 rd floor Cartwright Center
12:05 p.m. to 1:00 p.m.	Luncheon And Panel Discussion	Valhalla Cartwright Center

21st Annual Faculty Research Day

8:00 a.m. to 1:00 p.m.
January 22, 2016
Cartwright Center

Celebrate

*research at UW-La Crosse and
share in the endeavors of colleagues
and their students*

Learn and Share

*about research, scholarly and
creative activities at UWL*

This day to celebrate research is sponsored by the
University of Wisconsin-La Crosse
Provost/Vice Chancellor and the
Office of Research and Sponsored Programs
La Crosse, WI 54601

Panel Discussion:
**“Blurring the Lines between Scholarship,
Teaching, and Service through Community
Partnerships”**

This panel will discuss examples of faculty involving students in real projects with external clients in art, business, medical research, and political science.

Moderator: Scott Cooper (Undergraduate Research and Creativity)
Panelists: Barbara Bennie (Mathematics), Biomedical Network
Mary Hamman (Economics), Business Network
Misha Bolstad (Art), Non-profits Network
Jeremy Arney (Political Science), Policy Network



21st Annual Faculty Research Day
~ January 22, 2016 ~

Session I - Presentations: (8:45 - 9:15 a.m.)

Rm #

- A. Understanding Undergraduate Information-seeking Behavior** 326 CC
James Murray (Economics)
Sloan Komissarov (Co-author)
- B. European Concerns about Food Insecurity** 330 CC
Carol Miller (Sociology)
- C. Aristotle's Geometrical Objects** 331 CC
Mary Krizan (Philosophy)
- D. Nutrition Status of Division III Football Players and Subsequent Changes in Body Composition and Metabolism Following Pre-season Training Camp** 332 CC
Andrew Jagim (Exercise and Sports Science)
Glenn Wright (Exercise and Sports Science)

Session II - Presentations: (9:20 – 9:50 a.m.)

Rm #

- E. Evaluation of Hypovirulence Introduction in an American Chestnut Stand in Wisconsin** 326 CC
Anita Baines (Biology)
- F. A Brief History of Ionizing Radiation** 330 CC
Jeff Bryan (Chemistry and Biochemistry)
- G. Application of Rasch Methodology to Develop and Validate a Measure of Intention to Stay in Academia for Physician Assistant Faculty** 331 CC
Karen Graham (Health Professions)
- H. Hear, Here: Dealing with the Public in Public History** 332 CC
Ariel Beaujot (History)

Session III - Presentations: (10:20 - 10:50 a.m.)

Rm #

- I. Modeling Dark Matter Halos** 326 CC
Eric Barnes (Physics)
- J. Is a Deformed Helical Shape Really More Perfect?** 330 CC
Adrienne Loh (Chemistry and Biochemistry)
- K. Analysis of Health Plan Choice Behavior: Survey Evidence from 2016 Enrollments** 331 CC
Mary Hamman (Economics)
Taggart Brooks (Economics)
- L. Quantifying Spread in Three-Dimensional Rotation Data** 332 CC
Melissa Bingham (Mathematics and Statistics)

Session IV - Presentations: (10:55 a.m. - 11:25 a.m.)

Rm #

- M. Understanding the Nefarious Side of the Protein Universe** 326 CC
Dan Grilley (Chemistry and Biochemistry)
Todd Weaver (Chemistry and Biochemistry)
- N. The Hug Box or Participatory Democracy?: Politics on Social Media** 330 CC
Dawn Norris (Sociology)
Lisa Kruse (Sociology)
- O. Applications of Data Science (Machine Learning) for Marketing** 331 CC
Song Chen (Mathematics and Statistics)
Chad Vidden (Mathematics and Statistics)
- P. Managing Your Research Data and Teaching Best Practices** 326 CC
William Doering (Murphy Library)

- Q. Economic Costs of Alternative Monetary Policy Responses during Speculative Currency Attacks** 326 CC
Sheida Babakhani Teimouri (Economics)
- R. Consensus Building and Democratic Consolidation: The Post-Communist Experience** 330 CC
Regina Goodnow (Political Science and Public Administration)
- S. Using Bread Yeast to Examine the Mechanism of Action of an Antimicrobial: Death, Destruction, and Dancing Balls** 331 CC
Anne Galbraith (Biology)
- T. Mercury in Aquatic Food Webs of Six National Parks in the Western Great Lakes Region** 332 CC
Kristofer Rolfhus (Chemistry and Biochemistry Department)



21st Annual Faculty Research Day

PRESENTATIONS

(8:45 a.m. to 12:00 p.m.):

- A. Understanding Undergraduate Information-seeking Behavior**
James Murray (Economics)
Sloan Komissarov (Co-author)

We identify variables that affect undergraduate students' information-seeking behavior including how students conduct their search for sources, what types of sources they select, and what attributes of their sources they value. We identify influences on information seeking relating to both student demographics and actions taken by instructors and library staff. With a more thorough understanding of the process and its influences, we find opportunities for instructors and librarians to positively influence undergraduate information-seeking behavior.

- B. European Concerns about Food Insecurity**
Carol Miller (Sociology)

Through statistical analyses of data from the Eurobarometer 77.2 survey (N=26,593), this study identifies and explains differences between Europeans' concerns about food production sufficiency or food security. European respondents experiencing financial hardship or living in countries struggling to recover from the Great Recession, with higher unemployment and social exclusion rates, were more

concerned about food sufficiency in their own countries and less concerned about global food security.

- C. Aristotle's Geometrical Objects**
Mary Krizan (Philosophy)

This project explores Aristotle's claims that the objects of geometry are (1) not individual objects and (2) are not separable from individual objects. I suggest that there is a conflict between these two claims, and propose an interpretation of Aristotle's geometrical objects that can resolve the conflict.

- D. Nutrition Status of Division III Football Players and Subsequent Changes in Body Composition and Metabolism Following Pre-season Training Camp**
Andrew Jagim (Exercise and Sports Science)
Glenn Wright (Exercise and Sports Science)

Our project sought to examine the ability of Division III football players to abide by sport specific nutritional recommendations and how this impacted their ability to maintain lean body mass and metabolic activity throughout training camp. In addition we monitored daily hydration status, training load, and recovery status to determine the day by day physiological stress placed upon the athletes.

- E. Evaluation of Hypovirulence Introduction in an American Chestnut Stand in Wisconsin**
Anita Baines (Biology)

Hypoviruses of *Cryphonectria parasitica* were introduced in a large stand of American chestnut in western Wisconsin. After fifteen years of hypovirus introduction, there was movement of hypoviruses to trees that were not treated. Hypovirus introductions have resulted in the regrowth of the crowns of many large-diameter trees and have reduced tree mortality. Putative recovery of American chestnut suggests that prolonged hypovirus treatment can act as a biological control of chestnut blight epidemics.

- F. A Brief History of Ionizing Radiation**
Jeff Bryan (Chemistry and Biochemistry)

How did Röntgen, Becquerel, and Curie discover ionizing radiation? What were the key technologies, insights and missteps? What did Rutherford add? We'll follow these scientists' (and others) achievements as they began to understand X-rays, radioactivity, and the transmutative nature of radioactive decay and nuclear reactions.

G. Application of Rasch Methodology to Develop and Validate a Measure of Intention to Stay in Academia for Physician Assistant Faculty

Karen Graham (Health Professions)

The Rasch method allows for the construction of linear scales of additive, equal interval units of measurement from raw scores or observations. An application of Rasch methodology to develop and validate a measure of the psychological construct of “intention to stay in academia” for physician assistant faculty will be described. The results of this national study had implications for faculty retention in this profession.

H. Hear, Here: Dealing with the Public in Public History

Ariel Beaujot (History)

Interacting with the public as part of the Hear, Here project taught us four things: 1) new forms of history include more voices which acknowledge more aspects of our past and present; 2) history is not something that happened only in the past, but affects our current decision making process; 3) public history can start public conversations about our city and where we would like it to go; 4) racism continues to exist in our community.

I. Modeling Dark Matter Halos

Eric Barnes (Physics)

Dark matter appears to comprise the majority of mass in the universe, yet the physical mechanism underlying the structure of dark matter halos is unknown. In this work, we have investigated the ability of a certain class of models to match the results of computer simulations related to dark matter halos.

J. Is a Deformed Helical Shape Really More Perfect?

Adrienne Loh (Chemistry and Biochemistry)

Infections that are resistant to existing antibiotics are becoming more and more common. My group is one of many that are investigating peptide-based antibiotics as promising alternatives. My undergraduate students are using techniques that draw from chemistry, biology, and physics to study how peptide shape and other characteristics affect peptide-membrane interactions, which are key to the mode of function of these types of antibiotics.

K. Analysis of Health Plan Choice Behavior: Survey Evidence from 2016 Enrollments

Mary Hamman (Economics)

Taggart Brooks (Economics)

Our research examines the information seeking behavior and choices and individuals as they choose between employer provided health plans using survey data collected just after 2016 benefit year elections were submitted. Findings suggest individuals struggle to analyze complex plan attributes and may misidentify financially superior plans. Implications for future enrollment periods and broader application to healthcare reform are discussed.

L. Quantifying Spread in Three-Dimensional Rotation Data

Melissa Bingham (Mathematics and Statistics)

A measure of spread for 3-D rotation data will be introduced and a nonparametric statistical technique called bootstrapping will be used to provide confidence intervals for this measure. Existing parametric inference methods for estimating spread in 3-D rotations will be compared to the bootstrapping procedure through a simulation study. The bootstrapping technique will then be used in a materials science application where existing statistical distributions do not appear to provide an adequate fit.

M. Understanding the Nefarious Side of the Protein Universe

Dan Grilley (Chemistry and Biochemistry)

Todd Weaver (Chemistry and Biochemistry)

This presentation emphasizes the importance of meaningful internal and external collaborations toward sustaining a long-term and successful research program. Fundamentally, our research program investigates the protein structure-function paradigm as related to the evil side of the protein universe. Our recent contributions toward understanding the nefarious side of the protein universe will be presented in relation to routine bacterial infection.

N. The Hug Box or Participatory Democracy?: Politics on Social Media

Dawn Norris (Sociology)

Lisa Kruse (Sociology)

Social media platforms are popular sites, attracting millions of users who connect digitally. This has prompted some to argue that social media has reinvigorated social activism and Habermas’ (1991) public sphere. Qualitative data collected by the authors as part of a larger study on privacy online support critics of these claims. Instead, respondents avoid political conversations, only engage with those similar politically, or reject the effectiveness of being political on social media.



21st Annual Faculty Research Day

O. Applications of Data Science (Machine Learning) for Marketing

Song Chen (Mathematics and Statistics)
Chad Vidden (Mathematics and Statistics)

Data science is a powerful area with applications in almost every field of science and industry. In this talk we will give a overview of data science, and then focus on applications in marketing including sale prediction, customer segmentation, and identifying switchable consumers. We started a machine learning group with 5 students in Fall 2015 and potentially 12 in Spring 2016. We are looking for interdisciplinary collaboration to apply data science (machine learning) to any possible fields on campus such as biology, chemistry, artificial intelligence, finance and especially GIS.

P. Managing Your Research Data and Teaching Best Practices

William Doering (Murphy Library)

Are you struck or struggling in how best to manage your research data? Do your students struggle with these best practices? Murphy Library is here to help you and your students with research data best practices and in locating appropriate research data sets. Visit the Murphy Library guide for Research Data (<http://libguides.uwlax.edu/Data>)

Q. Economic Costs of Alternative Monetary Policy Responses during Speculative Currency Attacks

Sheida Babakhani Teimouri (Economics)

The outcome of a speculative pressure on the foreign exchange rate can be classified into one of three cases: (i) immediate depreciation of the nominal exchange rate, (ii) successful defense, or (iii) failed defense of the currency. This paper explores which of these outcomes yields the lowest cost in terms of output and unemployment in the short and medium run. The empirical analysis uses a sample of 105 countries over the 1960-2011 period.

R. Consensus Building and Democratic Consolidation: The Post-Communist Experience

Regina Goodnow (Political Science and Public Administration)

What role does consensus building between opposing political factions play in democratic transitions? My project takes up this question in the context of early post-Communist transitions with a focus on the case of Russia. It draws on original qualitative and quantitative data. Initial findings support the argument that

consensus building among diverse ideological factions, including perceived non-reformists, is an important part of paving the path toward democratic consolidation.

S. Using Bread Yeast to Examine the Mechanism of Action of an Antimicrobial: Death, Destruction, and Dancing Balls

Anne Galbraith (Biology)

My lab has been involved in a project for about three years now that examines the effects of an antimicrobial patented by UWL faculty. This antimicrobial, SK-03-92, is capable of killing various pathogenic bacteria, but how it kills remains elusive. My lab has been using the genetically tractable system, *Saccharomyces cerevisiae*, or bread yeast, to begin to understand the effects of this compound on cells. Results of this work will be presented.

T. Mercury in Aquatic Food Webs of Six National Parks in the Western Great Lakes Region

Kristofer Rolfhus (Chemistry and Biochemistry Department)

Mercury pollution is an important health risk to inhabitants of the western Great Lakes region. During 2010-12, we quantified mercury concentrations in food webs from 23 water bodies within six regional national park units. Our results show that mercury levels in water are largely driving its transfer through the food web. Despite recent regional decreases in Hg emissions, these continue to pose a threat to humans and wildlife in these mercury-sensitive landscapes.