

11<sup>th</sup> Annual

# PROVOST'S HONORS SYMPOSIUM

| for Research, Scholarship,  
and Creative Activity

**APRIL 23<sup>rd</sup>, 2021**

**CONFERENCE  
PROGRAM**



## WELCOME

# WELCOME TO THE 11<sup>TH</sup> ANNUAL PROVOST'S HONORS SYMPOSIUM FOR RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITY

Thanks to the generous support of **Provost Patricia Kleine** and the **Office of Research and Sponsored Programs**, we are excited to keep the tradition of the Provost's Honors Symposium going this year. In founding and organizing this annual symposium, the University Honors Program strives to meet its goal of supporting students in activities that lead to research, discovery, and innovation.

PHS 2021 showcases the research and creative projects of 90 students representing more than two dozen disciplines. These students have completed impressive projects during a particularly challenging year. I invite you to join me in attending their presentations and engaging in discussion about this rich and interesting work.

The Covid-19 crisis has marked this edition of PHS in several ways. We are debuting a virtual, synchronous format in Zoom, which we hope will allow families and friends beyond Eau Claire to attend our students' presentations. This year's program also shows the spirit of critical inquiry with which UWEC students have approached this pandemic: we have a range of presentations from students who have already researched Covid-19, examining everything from the responses of particular nations to the experiences of rural immigrant workers in Wisconsin.

Participants in the Provost's Honors Symposium are nominated each year by their UW-Eau Claire faculty mentors. Finalists are selected by the University Honors Council, a committee that includes University Honors students and faculty representatives from each of the UW-Eau Claire colleges:

- Jim Boulter, College of Arts and Sciences
- Mary Canales, College of Nursing and Health Sciences
- Hans Kishel, McIntyre Library, Faculty Member-at-large
- Sheril Gilberstadt, College of Business
- Kao Nou Moua, College of Education and Human Sciences
- Jennifer Muehlenkamp, College of Arts & Sciences
- Devion Rehbein, Student, At-Large Honors Student Steering Committee
- Maddy St. Pierre, Student, At-Large
- Julie Toenjes, Student, Honors LLC
- Hope Wachholz, Honors Student Steering Committee

Finally, thanks are due to the honors students who have volunteered to serve as session moderators—and thank you for supporting the highly accomplished students and faculty whose collaborative work is featured at this event.



Dr. Heather Fielding  
Director, University Honors Program

## TABLE OF CONTENTS

Welcome.....	1
Schedule at a Glance.....	3
Welcome + Opening Remarks .....	3
<b>Session I: 1:00 – 2:00 p.m.</b> .....	<b>3</b>
<b>Session II: 2:10 – 3:10 p.m.</b> .....	<b>3</b>
<b>Session III: 3:20 – 4:20 p.m.</b> .....	<b>4</b>
<b>Session IV: 4:30 – 5:30 p.m.</b> .....	<b>4</b>
Abstracts .....	5
<b>Session I: 1:00 – 2:00 p.m.</b> .....	<b>5</b>
Centennial Room .....	5
Menominee Room .....	6
Ho-Chunk Room .....	7
Chancellors Room .....	8
<b>Session II: 2:10 – 3:10 p.m.</b> .....	<b>9</b>
Centennial Room .....	9
Menominee Room .....	10
Ho-Chunk Room .....	11
Chancellors Room .....	12
<b>Session III: 3:20 – 4:20 p.m.</b> .....	<b>13</b>
Centennial Room .....	13
Menominee Room .....	14
Ho-Chunk Room .....	15
Chancellors Room .....	15
<b>Session IV: 4:30 – 5:30 p.m.</b> .....	<b>16</b>
Centennial Room .....	16
Menominee Room .....	17
Ho-Chunk Room .....	18
Chancellors Room .....	19
Index of Presenters & Faculty Nominators/Advisors .....	20

## SCHEDULE AT A GLANCE

### WELCOME + OPENING REMARKS

## SESSION I: 1:00 – 2:00 P.M.

### CENTENNIAL ROOM

1. Evaluating the Rationality of Views on U.S. Treatment of Indigenous People: A Philosophical Approach
2. Episodes of Ethnic Cleansing: Local-Level Dynamics during the Kosovo War

### MENOMINEE ROOM

3. Models of Micrometeorite Heating in Earth's Atmosphere
4. Observing Low Attitude Features in Ozone Concentrations Using UAS
5. Addressing Public Concerns about Frac Sand Mining in West Central Wisconsin through Community Outreach and Air Monitoring Analysis

### HO-CHUNK ROOM

6. Prenatal Screening for Adverse Childhood Experiences: An Exploration of Patient Perspectives
7. Creating a Culture of Civility: Incivility in Nursing Education & Practice
8. Forgiveness, Civility, and Personality: Exploring the Relationship of these Concepts in Nursing Education and Practice

### CHANCELLORS ROOM

9. College Students' Second-Language Experiences: Investigating Persistence and Speaking Context
10. Hidden Rhetorical Roles in the Twentieth Century Business Office: The Leadership Communication of Secretaries and Typists in the Archive of Tiger Oil Memos
11. How does cost resilience work in Healthcare industry? Evidence from public traded companies

## SESSION II: 2:10 – 3:10 P.M.

### CENTENNIAL ROOM

12. A Walk in Her Shoes: How Women of Color Navigate Through a Predominately White Institution
13. Understanding Femicide: Violence, Corruption, and Protest
14. Silenced Geographies: A Case Study of Roberto Tecpile's Journey from Mexico to Western Wisconsin

### MENOMINEE ROOM

15. EcoFighter - A Sustainability Tracking Platform
16. Examining Trends and Patterns in Chinese and American Support for Participation in the United Nations Paris Climate Agreement Using Survey Data from 2015, 2017 and 2020
17. Investigating Trends and Patterns in Chinese and American Climate Change Views Using an Index of Acceptance, Knowledge, Concern

**HO-CHUNK ROOM**

- 18. Using Social Network Analysis to Inform COVID-Era Community Aphasia Group Programming
- 19. Characterization of Edge Damage Induced on REBCO Superconducting Tape by Mechanical Slitting
- 20. Comparison of Leaf Damage and Trichomes of Wisconsin Helianthus Populations Grown in Varying Environments

**CHANCELLORS ROOM**

- 21. Counseling Capacity to Support Students with Schizophrenia
- 22. Yoga & Self-Injury: Pathways of Protection?
- 23. What's Worse: Lazy but Smart, or Stupid but Hardworking? Gender Differences in Mate Preferences and Aversions

**SESSION III: 3:20 – 4:20 P.M.**

**CENTENNIAL ROOM**

- 24. An Examination of Creativity in the Virtual World Language Classroom
- 25. Creating an Inclusive Syllabus to Engage International Students and Local Students
- 26. Creating Independent Learning Modules to Facilitate Language Proficiency Development

**MENOMINEE ROOM**

- 27. Identifying Opportunities to Participate in Advanced Energy: An Investigation into Estimating Real Capacity for Green Manufacturing and Structural Reform
- 28. Characterizing the Issuance and Usage of Benefits Offered Through the Women, Infants and Children Farmers Market Fruit and Vegetable Program in Wisconsin Before and During the COVID Pandemic
- 29. Investigating Utilization Trends for a Supplemental Nutrition Assistance Program-Market Match Incentive Program at the Eau Claire Farmers' Market Before and During the COVID Pandemic

**HO-CHUNK ROOM**

- 30. Honors 188: South Korea's Response to Covid-19
- 31. Honors 188: India's Response to Covid-19

**CHANCELLORS ROOM**

- 32. Stability Bounds for Sampling Erasures
- 33. GCD of Sums of k Consecutive Fibonacci, Lucas, and Generalized Fibonacci Numbers
- 34. Inharmonicity in Guitar Strings

**SESSION IV: 4:30 – 5:30 P.M.**

**CENTENNIAL ROOM**

- 35. Limitations and Barriers Faced by Latinx ELL's in United States Education Programs
- 36. Documenting the Undocumented: COVID-19 Oral Histories & Immigrant Workers in Rural Wisconsin (Nursing)
- 37. Documenting the Undocumented: COVID-19 Oral Histories & Immigrant Workers in Rural Wisconsin (Spanish + History)

**MENOMINEE ROOM**

- 38. Emotionality in Climate Change Commentary
- 39. Bringing Clarity from Chaos: Notes on the Creative Nonfiction Process
- 40. Presentations and Conversations on Ruminations and Fixations: The Behind-the-Scenes Story of the Formation of a Creative Writing Podcast

**HO-CHUNK ROOM**

- 41. Changing Perceptions of Inclusion: The Role of a Universal Design for Learning Framework in Pre-Service Teacher Preparation
- 42. Database Development for Accessibility/Adaptations for People with Special Needs
- 43. Implementing EDI into Studio Art Education

**CHANCELLORS ROOM**

- 44. Structural and Energetic Properties of OC–BX3 Complexes: Computations and IR Spectroscopy
- 45. Three-State pH-Driven Biaryl Lactone Molecular Switches with Amine Donors
- 46. Investigation of the Effects of Variable-Sized Polyethylene glycol on the Conformation and Function of Prolyl-tRNA Synthetase Using Experimental and Computational Methods

**ABSTRACTS****SESSION I: 1:00 – 2:00 P.M.****CENTENNIAL ROOM**moderators: **Claire Ganschow + Angela Gasser**Zoom link: <https://uwec-edu.zoom.us/j/89529707698?pwd=V2ZGeUcwVWJVUUw0aUVTNVh3dkNrZz09>**1. EVALUATING THE RATIONALITY OF VIEWS ON U.S. TREATMENT OF INDIGENOUS PEOPLE: A PHILOSOPHICAL APPROACH**Presenter: **Hannah Dvorak**Faculty nominator/mentor: **Kristin Schaupp, Philosophy & Religious Studies**

Should US treatment of indigenous people be considered genocide or not? While there are many different responses to this debate, there are four main contenders. Using a philosophical lens developed in response to epistemological work on disagreement, specifically in response to the question of whether on-going disagreement is rational, I analyze each of the four main contenders and assess their rationality. One notion missing from the philosophical debate on disagreement is a distinction between perfect and imperfect rationality. Using this distinction requires that we view rationality and irrationality as a multilevel spectrum. Applying these philosophical insights to the debate about US treatment of indigenous people allows us to determine to whether the typical responses are rational or irrational, and why this is the case. This approach can also help us to understand why multiple responses can be considered rational, even when, as I will argue here, one position stands out from the others as most rational.

**2. EPISODES OF ETHNIC CLEANSING: LOCAL-LEVEL DYNAMICS DURING THE KOSOVO WAR**Presenter: **Matthew Tentler**Faculty nominator/mentor: **Damir Kovacevic, Political Science**

How and why did policies of ethnic cleansing unfold across various municipalities during the Kosovo War (1998-00)? Why did some municipalities experience horrific war crimes, intense violence, and targeted group destruction, while others did not? These questions highlight the importance of the local level – meso level – for understanding violence across time and space. The meso level is a tool that studies violence at an analytical level below the nation-state. In this paper, we investigate the meso-level dynamics of the Kosovo War, with particular attention to the episodes of ethnic cleansing that occurred in certain places at certain times. We contend that violence is not uniform. Onset, duration, and intensity vary from village to village, city to city, and region to region. Thus, to explore this process, we employ a micro-comparative study of three municipalities (Dečani, Glogovac, and Suva Reka) for a more in-depth understanding. We find that to understand why policies of ethnic cleansing may unfold, one must account for both the scope conditions – war and exclusionary ideology – and the explanatory variables – political authority, territorial superiority, and agent collaboration.

## **MENOMINEE ROOM**

moderators: **Carly Bower + Nicole Varese**

Zoom link: <https://uwec-edu.zoom.us/j/83721990950?pwd=T3RKckFTbk5GVjNYeFIObTd1NjIEQT09&from=addom>

### 3. MODELS OF MICROMETEORITE HEATING IN EARTH'S ATMOSPHERE

Presenters: **Tyler Gonzales**

Faculty nominator/mentors: **Paul Thomas, Physics & Astronomy; Philip Ihinger, Geology**

I discuss the development of a numerical simulation of the atmospheric passage of interplanetary dust particles to analyze their physical characteristics, including their shape and size. Interplanetary dust particles arise in a variety of ways, some even landing on the roofs of buildings. These particles can be found using numerous techniques including magnetic detection due to the high magnetic content of some of these particles.

### 4. OBSERVING LOW ATTITUDE FEATURES IN OZONE CONCENTRATIONS USING UAS

Presenter: **Josie Radtke**

Faculty nominator/mentor: **Patricia Cleary, Chemistry**

Ozone is a pollutant formed in the atmosphere by photochemical processes involving nitrogen oxides and volatile organic compounds when exposed to sunlight. Ozone is regularly measured at ground stations and sampled infrequently through balloon and aircraft platforms which have demonstrated the non-uniformity with altitude. An unmanned aerial system (UAS) platform for measuring ozone has been developed. First a Typhoon H hexacopter UAS was flown with a portable ozone monitor, POM, and a meteorological temperature and humidity sensor, InterMet system, iMet was flown as a part of the CHEESEHEAD19 campaign to compare to tower measurements at two separate inlet heights. In June 2020, a DJI M600 hexacopter was flown with the same sensors to measure Lake Michigan shoreline ozone concentrations. This UAS platform has revealed low-altitude structure in ozone concentrations in a shoreline environment. These are the first such measurements of low-altitude ozone via UAS in the Great Lakes Region, which has revealed a very shallow layer of ozone rich air lying above the surface.

### 5. ADDRESSING PUBLIC CONCERNS ABOUT FRAC SAND MINING IN WEST CENTRAL WISCONSIN THROUGH COMMUNITY OUTREACH AND AIR MONITORING ANALYSIS

Presenters: **Reggie Eggen, Katrina Kawak, Mark Larsen, Madaline Massetti, Kasee Meyer & Joseph Vue**

Faculty nominator/mentor: **Crispin Pierce, Environmental Public Health/Watershed Institute**

The COVID-19 pandemic halted frac sand activity within west-central Wisconsin and our team installed and analyzed data from air quality monitors to collect baseline PM<sub>2.5</sub> concentrations in communities near frac sand facilities prior to mining resumption. Additionally, our team worked to address community concerns about living near a frac sand facility. We found statistically significant differences in PM<sub>2.5</sub> concentrations varying on location; however, we found no correlation between PM<sub>2.5</sub> concentrations and the distance to the frac sand mines. We also found no statistical significance in PM<sub>2.5</sub> concentrations when comparing urban and rural areas, simulating differences in traffic or that the summer 2020 west coast wildfires, which generated large PM<sub>2.5</sub> concentrations

locally, did not increase PM2.5 levels within Wisconsin. A ten-question survey asking participants to identify their concerns and rate their confidence in the air monitoring found that participants ranked their confidence in air monitor findings as an average of 4.5 out of 5 and their comfort with the air monitor website as an average of 4.25 out of 5.

## HO-CHUNK ROOM

moderators: Morgan Mack + Devion Rehbein

Zoom link: <https://uwec-edu.zoom.us/j/84041065519?pwd=Mm85Q0k4akVSM08vMFlYWmtYV1RXQT09>

### 6. PRENATAL SCREENING FOR ADVERSE CHILDHOOD EXPERIENCES: AN EXPLORATION OF PATIENT PERSPECTIVES

Presenter: Elizabeth Galloway

Faculty nominator/mentors: Jeanette Olsen & Pamela Guthman, Nursing

Adverse Childhood Experiences (ACEs) can have lasting effects on one's health throughout the lifespan and can ultimately impact the next generation. The prenatal period provides a unique opportunity for healthcare professionals to establish relationships with women, screen for ACEs, provide education, and make referrals to resources that support healing. The purpose of this mixed-methods study was to learn more about women's views on screening for ACEs during healthcare visits in pregnancy. Survey data were collected from 154 women from Northwestern Wisconsin with a history of one or more pregnancies. Women were recruited through regional health department social media pages in Fall 2020. Quantitative measures included demographic variables, ACE scores, and preferences regarding screening format, strategies, and resources. Additional perspectives were captured through open-ended questions. Following data analysis, results will describe women's perspectives on ACEs screening during prenatal healthcare visits inclusive of screening format and additional education and resources they would like to receive. Findings will inform strategies for efficiently and sensitively screening for ACEs during pregnancy and provide direction for educational and interventional resource development.

### 7. CREATING A CULTURE OF CIVILITY: INCIVILITY IN NURSING EDUCATION & PRACTICE

Presenters: Shelby Christopherson, Rita Donahue, Briunna Wells & Sophia Wusterbarth

Faculty nominator/mentors: Linda Sargent & Ann Aschenbrenner, Nursing

Incivility in nursing is so well-known there's a saying that nurses eat their young. "Incivility, bullying, and lateral violence are still prevalent and are a significant driver of nurse dissatisfaction and job turnover" (Abersold, 2020). This study aims to promote a culture of civility by raising awareness of incivility in the nursing profession, identifying behaviors associated with incivility, and helping students develop skills to respond to uncivil encounters. The topic is introduced to students in video and PowerPoint lecture formats including background information, definitions and examples of incivility, and examples of how incivility impacts the nursing profession. Case studies with questions are utilized, as well as post-clinical discussions. Cognitive rehearsal and role-playing using student-created scenarios and scenarios obtained from other nursing incivility studies expose students to uncivil behaviors in a controlled environment. "Awareness of the importance of incivility and capability to change uncivil behavior have effective roles on improving incivility" (Abedini, 2019). Students will be given a survey before clinical and again after to measure growth of knowledge and preparedness to handle uncivil encounters.

### 8. FORGIVENESS, CIVILITY, AND PERSONALITY: EXPLORING THE RELATIONSHIP OF THESE CONCEPTS IN NURSING EDUCATION AND PRACTICE

Presenters: Emma Booth & Jessica Rusciano

Faculty nominator/mentor: Ann Aschenbrenner, Nursing

**PURPOSE:** The study aim is to describe the relationships among forgiveness, civility, and personality characteristics in nursing education and practice. **Design:** Descriptive, cross-sectional, quantitative study of employed registered nurses in education and clinical practice. **METHODS:** Online, quantitative survey, shared via email and social media.



Participants were invited to share the survey link with other nurses. The Clark Workplace Civility Index; Hartland Forgiveness Scale; Big 5 Personality Scale: sub scales agreeableness and negative emotionality were combined into one survey and administered using the anonymous response setting in Qualtrics. FINDINGS: Data analysis will be completed during the month of March. Anticipated findings include a relationship among civility, forgiveness, and personality characteristics. Civility will be associated with high forgiveness and agreeability. Lower civility will be associated with greater negative emotionality and lower forgiveness. CONCLUSIONS: The relationships discovered amongst the variables may be used for developing educational programs to improve civility in nursing education and practice and to provide foundation for future studies.

## CHANCELLORS ROOM

moderators: Anna Egli + Hope Wachholz

Zoom link: <https://uwec-edu.zoom.us/j/89232982261?pwd=MTBKaUNyQ21tbVVUa1Vha2N5d2UvUT09>

### 9. COLLEGE STUDENTS' SECOND-LANGUAGE EXPERIENCES: INVESTIGATING PERSISTENCE AND SPEAKING CONTEXT

Presenter: Kalli Charles

Faculty nominator/mentor: Christine Vriesema, Psychology

College students across the U.S. sign up for second-language courses for their major, minor, and personal interest. Many students persist in learning their second language while others become discouraged when they make mistakes. Although mistakes are a normal and functional part of the learning process, students who feel discouraged are more likely to be perfectionistic in their language-learning and even intend to quit their second language altogether. This project explored whether (1) college students' discouragement and normalizing behaviors after second-language mistakes varied across speaking contexts; and (2) how student characteristics (perfectionism, second-language speaking comfort) and experiences (discouragement, normalizing mistakes) predicted students' intentions to quit learning a second language. Results indicated that striving towards perfection predicted greater intentions to quit and that college students experienced greater discouragement after mistakes with native speakers compared to mistakes that occurred in whole-class settings and with peers. Based on these results, future research and interventions might explore whether explicitly framing learning as a process, minimizing social comparison, and normalizing mistakes across learning contexts might help enhance student outcomes in second-language learning contexts.

### 10. HIDDEN RHETORICAL ROLES IN THE TWENTIETH CENTURY BUSINESS OFFICE: THE LEADERSHIP COMMUNICATION OF SECRETARIES AND TYPISTS IN THE ARCHIVE OF TIGER OIL MEMOS

Presenter: Twyla Alix

Faculty nominator/mentor: Marcy Orwig, Business Communication

Bakhtin's (1981) explanation of heteroglossia demonstrates how words are influenced by the text—or genre—of a profession, a particular person, or specific time period, and that each word “tastes of the context or contexts in which it has lived its socially charged life; all words and forms are populated by intentions” (p. 293). While Bakhtin's definition of heteroglossia has been widely used to analyze genres in literature, it has not been applied to better understand the genres of professional communication. As a result, this research analyzes the memo artifacts in the archive of the Tiger Oil Company. These memos, which date from the late 1970s, provide insight to the rhetorical voice of overlooked secretaries and typists from by-gone eras and how this historical tradition of workplace writing still influences current business communication practice.

### 11. HOW DOES COST RESILIENCE WORK IN HEALTHCARE INDUSTRY? EVIDENCE FROM PUBLIC TRADED COMPANIES

Presenter: Kyle Schmocker

Faculty nominator/mentor: Jidong Zhang, Accounting & Finance

The project is to explore cost management and behavior in the healthcare industry. The project is derived from collaborative research with the Mayo clinic. The project will use the public data which were extracted from the financial research database and IRS Tax database. The analysis focuses on the investigation of the relationship between different cost drivers and revenues. Our paper will contribute to revenue management and cost management in the healthcare industry. The conclusions not only have managerial implications but also make a theoretical contribution to healthcare research.

## SESSION II: 2:10 – 3:10 P.M.

### CENTENNIAL ROOM

moderator: Morgan Mack

Zoom link: <https://uwec-edu.zoom.us/j/83644632388?pwd=ckl4d1dnRDJmaUNkbitERmhHdXJUUT09>

### 12. A WALK IN HER SHOES: HOW WOMEN OF COLOR NAVIGATE THROUGH A PREDOMINATELY WHITE INSTITUTION

Presenter: Alejandra Serna

Faculty nominator/mentors: José Alvergue, English; Kelly Wonder, McNair Program

The purpose of this research study is to see how women of color that identify as Black and/or Latina navigate through a predominately white institution, such as the University of Wisconsin-Eau Claire. In addition, another purpose of the research is to successfully apply the narratives of these women, audio-recorded as 'testimonies,' to gain greater insight on how students adjust to an environment outside their comfort-zones. This project aims to provide awareness to enhance the experiences of future students who sacrifice their culture in hopes of a higher education diploma.

### 13. UNDERSTANDING FEMICIDE: VIOLENCE, CORRUPTION, AND PROTEST

Presenter: Claire Ganschow

Faculty nominator/mentor: Manuel Fernández, Languages + Latin American and Latinx Studies

Mexican women currently face an undeniable crisis in relation to gender-based violence and femicide in Mexico. For nearly three decades, Ciudad Juárez, a city situated on the US-Mexico border, has experienced alarming rates of disappearances, murders, and sexual assaults among all genders. However, the crimes against women are horrifying in a different manner because they are typically victims of extreme sexual violence and their murders are scrutinized under machista culture. To understand why and how femicide has risen to such great degrees over the past decade, it is necessary to understand three aspects of the crimes. In order to recognize the ways in which these crimes are committed, the violence that is associated with femicide must be uncovered. In addition, corruption within the Mexican government and police forces is a clear example as to why so many femicide cases remain unsolved and why women and their families receive no justice. As a result, women and feminists have taken to the streets of Mexico in protest to demand to be heard and take back their power.

### 14. SILENCED GEOGRAPHIES: A CASE STUDY OF ROBERTO TECPILE'S JOURNEY FROM MEXICO TO WESTERN WISCONSIN

Presenter: Rebecca Reif

Faculty nominator/mentors: Jeff DeGrave, Intercultural Immersion; Manny Fernández, Languages

The purpose of this project is to humanize the migrant experience using maps and to offer a poststructural critique of Western research practices through a case study of Roberto Tecpile, a migrant worker from Veracruz, Mexico who has been working in the United States since 1998. This research builds on previous geospatial representations of migrant experiences as well as anthropological critiques of Western research practices and cartography.

Combining qualitative data collection methods and geospatial technology, this project maps key points in Roberto's journey that visually represent one migrant's individual experience crossing the US-Mexico border. Ultimately, Roberto's journey is ongoing. Thus, there are no definitive conclusions about his life. Instead, this research emphasizes the variability in migrant experiences and offers a critical analysis of academia's role in reproducing potentially harmful power relations through a self-reflective analysis of the relationship between the researcher and the researched.

## MENOMINEE ROOM

moderators: Angela Gasser + Nicole Varese

Zoom link: <https://uwec-edu.zoom.us/j/85317420423?pwd=elJnQVBCCWc0R1J1bHlyd1hDQitQUT09&from=addon>

### 15. ECOFIGHTER - A SUSTAINABILITY TRACKING PLATFORM

Presenter: Brandon Pessman

Faculty nominator/mentor: Rakib Islam, Computer Science

Today, climate change is more relevant than ever. It will affect the generations to come if we do not make simple changes (e.g., minimizing usages of polythene bags) in the way we perform our day-to-day activities. EcoFighter is a web and mobile application for tracking and visualizing people's eco-friendly behaviors that collectively can create a huge positive impact to fight against climate change. The app can track everything from your reusable bag usage to how many times you refill your water bottle in a day. The app can keep you up to date with how your friends are doing and even how your school is doing as a whole. Users of the app can participate in competitions to redeem rewards, such as coupons to local businesses, contributions to nonprofits, exclusive content, and more by showing their eco-friendly behaviors. Such a reward system will keep people motivated and excited to ensure their sustainable eco-friendly behaviors.

### 16. EXAMINING TRENDS AND PATTERNS IN CHINESE AND AMERICAN SUPPORT FOR PARTICIPATION IN THE UNITED NATIONS PARIS CLIMATE AGREEMENT USING SURVEY DATA FROM 2015, 2017 AND 2020

Presenters: Sakumi Kawamoto, Chloe Knuth, Philip Long & Hannah Raddenbach

Faculty nominator/mentors: Eric Jamelske, Economics; James Boulter, Chemistry + Watershed Institute

Climate change (CC) is perhaps the most important issue of our time. As the world's two largest economies and greenhouse gas polluters, China and the United States are key players in international CC negotiations. To better understand the views of Chinese and American citizens we analyzed survey data from 2015 (N=7,556), 2017 (N=7,415) and 2020 (N=4,013). Support for each country fulfilling their commitment under the Paris Agreement was examined with no mention of the other country (control) and conditional on knowing the other country would not fulfill their commitment (treatment). Our results indicated greater support among Chinese for their country to fulfill their Paris Agreement commitment compared to Americans with little change in this general result over time. Support in both countries declined in 2015 and 2017 when it was known the other country would not fulfill their commitment with this result being less evident in 2020. There was also consistently more variation in Paris Agreement support among Americans with a consistent and significant political division among Americans as liberals/conservatives showed the most/least support respectively.

### 17. INVESTIGATING TRENDS AND PATTERNS IN CHINESE AND AMERICAN CLIMATE CHANGE VIEWS USING AN INDEX OF ACCEPTANCE, KNOWLEDGE, CONCERN AND OBLIGATION TO ACT USING SURVEY DATA FROM 2015, 2017 AND 2020

Presenters: Maddie Culhane, Savanna Grunzke, Caleb Kulich & Katelyn Worzalla

Faculty nominator/mentors: Eric Jamelske, Economics; James Boulter, Chemistry + Watershed Institute

Climate change (CC) is perhaps the most important issue of our time. As the world's two largest economies and greenhouse gas polluters, China and the United States are key players in international CC negotiations. To better

understand the views of Chinese and American citizens we analyzed survey data from 2015 (N=7,556), 2017 (N=7,415) and 2020 (N=4,013). A CC acceptance/knowledge/concern/obligation index (CCI) was calculated with higher scores indicating more alignment with the scientific realities of CC. Comparisons are presented across countries in each year and within each country across years. We also report on responses to individual survey questions that are incorporated into the CCI calculation. American views on CC are also compared across political affiliations. Our results indicated relatively consistent differences between Chinese and American CC views with some notable changes over time. Chinese CCI scores were generally higher than for Americans, while there was consistently more variation in American CCI scores. Additionally, there was a consistent and significant political division among Americans with the following pattern in CCI Scores (conservative < moderate < liberal).

## HO-CHUNK ROOM

moderators: Megan Gosian + Hannah Heider

Zoom link: <https://uwec-edu.zoom.us/j/84452592332?pwd=U0tKdUIZSkFsYndReDF2UzZxS0Ftdz09>

### 18. USING SOCIAL NETWORK ANALYSIS TO INFORM COVID-ERA COMMUNITY APHASIA GROUP PROGRAMMING

Presenter: Anna Livera

Faculty nominator/mentor: Thomas Sather, Communication, Sciences & Disorders

In the pre-COVID era, aphasia has been highly associated with reduction in social networks among both individuals with aphasia and their care partners. Among the multitude of negative impacts of the COVID era is increased risk of social isolation. Community aphasia groups have historically been a means to mitigate the impacts of aphasia related to social isolation. Over the past year, community aphasia group programming in the Chippewa Valley has gone entirely virtual. Social network analysis was used to evaluate network characteristics of these service deliveries pre- and post-COVID. Multiple social network characteristics are visualized and discussed, specifically measures of centrality including both in-degree and out-degree. Implications for post-COVID era delivery, including network diversity and network vulnerability, are discussed.

### 19. CHARACTERIZATION OF EDGE DAMAGE INDUCED ON REBCO SUPERCONDUCTING TAPE BY MECHANICAL SLITTING

Presenter: Nate Hartnett

Faculty nominator/mentor: Matthew Jewell, Materials Science & Biomedical Engineering

Rare-earth barium-copper-oxide (REBCO) superconductors are high-field superconductors fabricated in a tape geometry that can be utilized in magnet applications exceeding 20 Tesla. During a mechanical slitting step in the manufacturing process, edge cracks can be introduced into the tape. We sought to understand which layers were the mechanically weakest by locating the crack initiation layer and identifying the geometrical conditions of the slitter that promoted or suppressed crack formation. The described cracking was investigated by selectively etching and characterizing each layer with scanning electron microscopy, laser confocal microscopy, and digital image analysis. The total number of cracks measured in 30 mm of wire length was between 3000 and 5700 depending on the layer and their crack densities were 102 cracks/mm for REBCO, 108 cracks/mm for LMO, and 183 cracks/mm for Al<sub>2</sub>O<sub>3</sub>. These results indicated that there are separate crack initiation mechanisms for the REBCO and the LMO layers. With a better understanding of the crack growth behavior exhibited by REBCO tapes, the fabrication process can be improved to provide a more mechanically stable and cost-effective superconductor.

### 20. COMPARISON OF LEAF DAMAGE AND TRICHOMES OF WISCONSIN HELIANTHUS POPULATIONS GROWN IN VARYING ENVIRONMENTS

Presenter: Madilyn Vetter

Faculty nominator/mentors: Nora Mitchell, Biology; Kelly Wonder, McNair Program

Defenses against predators are important adaptations in plants. Leaf hairs, or trichomes, are a mechanical defense mechanism that reduces insect herbivore damage. Under global climate change, plants may encounter novel insect predators as species move northward and growing seasons lengthen. It is important to understand what mechanisms will enable crops and their wild relatives to respond to these novel pressures. Traits (such as trichomes) may exhibit phenotypic plasticity in response to environmental conditions or change genetically through time (evolve). Here, we ask if sunflowers alter mechanical defenses to defend against insect damage. Sunflowers (*Helianthus*) are an important crop and exhibit natural diversity throughout North America. We assessed plant mechanical defenses and insect damage on over 600 individuals from three species (*H. grosseserratus*, *H. maximiliani*, and *H. giganteus*) in three settings: greenhouse, common garden, and wild populations throughout Wisconsin. We found differences in insect damage and trichome densities between growing environments, indicative of environmentally driven plasticity. This research will help us understand how plants respond to novel predators and focus agricultural efforts such as pesticide development.

## CHANCELLORS ROOM

moderators: Devion Rehbein+ Julia Toenjes

Zoom link: <https://uwec-edu.zoom.us/j/84197990528?pwd=THdiU0crd0I2MENWS0lpeWJnK1o5dz09>

### 21. COUNSELING CAPACITY TO SUPPORT STUDENTS WITH SCHIZOPHRENIA

Presenter: Delaney Collins

Faculty nominator/mentors: Jennifer Muehlenkamp, Psychology; Kelly Wonder, McNair Program

Schizophrenia is a serious and persistent mental illness that affects 1% of the population and has an average age of onset that coincides with traditional college student age. College counseling centers would be a likely first-point of contact for a student experiencing a first-onset of schizophrenia or a place for on-going support managing schizophrenia. Little is known about the training and perceived confidence of university counselors to support students with schizophrenia. This study used a mixed-methods approach to examine the training, perceived knowledge, stigma towards, and confidence in one's ability to treat a student with schizophrenia among university counselors and directors. Results from the quantitative portion show that counselors with more training and experience report less stigma and greater confidence to support students. Qualitative interviews with directors suggest that while they are aware of student needs, counseling centers may not be equipped to provide best-practices to students with schizophrenia. Implications of these findings for college counseling centers will be discussed.

### 22. YOGA & SELF-INJURY: PATHWAYS OF PROTECTION?

Presenter: Emily Wagner

Faculty nominator/mentor: Jennifer Muehlenkamp, Psychology

The purpose of this study was to examine whether practicing yoga has the potential to reduce NSSI frequency by increasing body regard, mindfulness, and self-compassion. Participants included 676 college students (mean age = 19.98; 34.0% first year students) from UWEC who completed an online survey measuring the variables listed above. Independent sample t-tests and mediation-regression analyses were conducted to evaluate hypotheses. While yoga practice did not differ between those with and without NSSI, regression analyses showed that mindfulness was associated with reduced NSSI because of its influence on self-compassion and body regard. Practicing yoga may help to reduce NSSI because it can increase mindfulness, self-compassion and body regard. Additional implications and limitations of this study will be discussed.

### 23. WHAT'S WORSE: LAZY BUT SMART, OR STUPID BUT HARDWORKING? GENDER DIFFERENCES IN MATE PREFERENCES AND AVERSIONS

Presenters: Jamie Peterson & Emily Wagener

Faculty nominator/mentor: April Bleske-Rechek, Psychology

We investigated gender differences in the pursuit of positive mate characteristics and gender differences in the avoidance of negative mate characteristics. In Study 1, men and women rated a comprehensive list of 76 positive characteristics or 76 negative characteristics. Women preferred characteristics in the “Hardworking” and “Wealthy” categories more than men did, and they avoided characteristics associated with being “Lazy,” “Poor,” “Unreliable,” “Cold,” “Submissive,” “Uncultivated,” and “Prudish” more than men did. In Study 2, we began with an initial list of 11 core traits and their negative counterparts (e.g., smart/stupid, good-looking/ugly) to create a series of trade-off questions. Women more often than men traded off other positive traits to obtain a mate who was thoughtful, polite, and family-oriented; men more often traded off other positive traits to obtain a mate who was good-looking and smart. Further, women more often than men settled for other negative traits to avoid a partner who was disloyal, and men more often settled for other negative traits to avoid a partner who was ugly or stupid.

## SESSION III: 3:20 – 4:20 P.M.

### CENTENNIAL ROOM

moderators: Anna Feigen + Morgan Mack

Zoom link: <https://uwec-edu.zoom.us/j/84716647783?pwd=QURBTvQvMVpKd3J6UXZrbGtyYnMydz09>

### 24. AN EXAMINATION OF CREATIVITY IN THE VIRTUAL WORLD LANGUAGE CLASSROOM

Presenter: Jesselyn Nadolny

Faculty nominator/mentor: Anne Hlas, Languages

This study will investigate creativity in the virtual world language classroom during the COVID-19 pandemic. In recent years, many researchers agree that the advancement of creativity necessitates its purposeful inclusion in classroom. While there is a recent burgeoning interest in creativity within education, little has been researched related to creative factors within the online language classroom. For this reason, this research study will focus on how creativity is defined in the world language K-12 classroom by analyzing self-selected creative and uncreative artifacts submitted by K-12 language teachers. The research question that guides this study is: how do K-12 world language teachers define creative and uncreative artifacts in the virtual classroom?

### 25. CREATING AN INCLUSIVE SYLLABUS TO ENGAGE INTERNATIONAL STUDENTS AND LOCAL STUDENTS

Presenters: Xiaoxue Liu & Yutong Yin

Faculty nominator/mentor: Kaishan Kong, Languages

As study abroad programs increase in popularity, the population of foreign exchange students increases across universities around the world. The main topic of this research project is peer-scaffolding in Chinese-English language learning. In the process of peer scaffolding, corrective feedback contributes to second language acquisition (Ellis & Rod, 2009) and intercultural communication. This project seeks answers to three research questions. (1) In what way(s) does tandem learning help with students' language improvement? (2) In what way(s) does tandem learning help students deepen their cultural knowledge? (3) What are essential and applicable elements in a syllabus to create an inclusive and diverse learning environment? The researchers identified language learners' language gains by analyzing the recording of their conversation in completing tasks, worksheets that elicit examples of language gains, as well as using language-related episodes and interviews. This case study sheds light on progressive and innovative learning. The results provide insightful information on the advantages and challenges in peer scaffolding, which may illuminate potential pedagogies for professors in any department—not limited to foreign language only.

### 26. CREATING INDEPENDENT LEARNING MODULES TO FACILITATE LANGUAGE PROFICIENCY DEVELOPMENT

Presenter: **Gretta Wiederhold**

Faculty nominator/mentor: **Martina Lindseth, Languages**

This project supports efforts toward enabling learners to reach the benchmark target language proficiency of Intermediate High. Students at the upper levels of language instruction are at very different levels of proficiency, which makes strategic use of time inside and outside the classroom especially challenging and crucial. Learners share a lack of structural control, but to varying degrees. Instructional design must be individualized, integrate independent learning activities, maximize use of appropriate technologies, and allow for flexibility in terms of content and time-on-task. The main goals of this project are (1) to determine which structures need to be controlled for speakers at Intermediate High to be intelligible to native speakers and (2) to design focused grammar tutorials to help students acquire these structures.

## **MENOMINEE ROOM**

moderators: **Julia Toenjes & Sarah Landeau**

Zoom link: <https://uwec-edu.zoom.us/j/84844290289?pwd=WmYySmJNSUsxcW9BTG9Da0lveUR3UT09&from=addon>

### **27. IDENTIFYING OPPORTUNITIES TO PARTICIPATE IN ADVANCED ENERGY: AN INVESTIGATION INTO ESTIMATING REAL CAPACITY FOR GREEN MANUFACTURING AND STRUCTURAL REFORM**

Presenter: **Megan Roehl**

Faculty nominator/mentor: **Thomas Kemp, Economics**

Global climate change will require changes in how we produce energy. At the same time, recent geopolitical events combined with the COVID-19 outbreak is certain to lead to a reevaluation of global supply chains. Taken in combination it is likely that market and policy changes will create significant opportunities for the domestic manufacture of the components associated with the production of 'green' energy. Using a combination of NAICS industrial data and proprietary firm data, that is scalable to the national level, we attempt to determine the real capacity for Wisconsin State manufacturers to participate in the component supply chain associated with wind and solar power.

### **28. CHARACTERIZING THE ISSUANCE AND USAGE OF BENEFITS OFFERED THROUGH THE WOMEN, INFANTS AND CHILDREN FARMERS MARKET FRUIT AND VEGETABLE PROGRAM IN WISCONSIN BEFORE AND DURING THE COVID PANDEMIC**

Presenters: **Kayla Irlbeck, Zach Ledwith, Tristan Shuttleworth, & Madelyn Zenner**

Faculty nominator/mentor: **Eric Jamelske, Economics**

Food insecurity is a significant issue facing many American households. The Women, Infants and Children Program (WIC) provides increased access to food for families in need. It is particularly challenging for low-income households to purchase/eat the recommended amount of fruits and vegetables (FV). Farmers' markets offer a wide variety of fresh, local and healthy foods, especially FV, but data show that low-income households are much less likely to shop at farmers' markets. The Wisconsin WIC Farmers' Market Fruit and Vegetable Program (FMFVP) improves access to FV at farmers' markets in season for qualifying WI households. In 2020, COVID-19 significantly increased the number of families facing food insecurity while Wisconsin farmers' markets also faced a variety of challenges regarding how to operate safely. Additionally, all families faced challenging decisions about where/when to shop for food during the pandemic. This study analyzed the issuance and usage of FMFVP benefits among Wisconsin WIC households between 2019 and 2020. Among our many findings is that issuance and usage of WIC FMFVP in Wisconsin decreased in 2020 compared to 2019.

### **29. INVESTIGATING UTILIZATION TRENDS FOR A SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM-MARKET MATCH INCENTIVE PROGRAM AT THE EAU CLAIRE FARMERS' MARKET BEFORE AND DURING THE COVID PANDEMIC**

Presenters: Ethan Blaney, Katie Klingbeil, Andrew Lindaas, & Katelyn Reckin

Faculty nominator/mentor: Eric Jamelske, Economics

Food insecurity is a significant issue facing many American households. The Supplemental Nutrition Assistance Program (SNAP) provides increased access to food for families in need. It is also important to increase the accessibility/affordability of healthy/nutritious foods including fruits and vegetables (FV) for these households. Farmers' markets offer a wide variety of fresh, local and healthy foods, especially FV, but data show that low-income households are much less likely to shop at farmers' markets. The Eau Claire Farmers' Market (ECFM) offers a Market Match Program (MMP) to incentivize SNAP participants to shop at the market in season. In 2020, COVID-19 significantly increased the number of families facing food insecurity while the ECFM also faced a variety of challenges regarding how to operate safely. Additionally, all families faced challenging decisions about where/when to shop for food during the pandemic. This study analyzed utilization trends and behaviors/opinions among SNAP households for the MMP at the ECFM between 2019 and 2020. Among our many findings is that more SNAP households used the ECFM MMP in 2020 compared to 2019.

## HO-CHUNK ROOM

moderator: Megan Gosian

Zoom link: <https://uwec-edu.zoom.us/j/86881965502?pwd=MnQ2R1RrZ3NVc1lyc2lJa2pqMG0ydz09>

### 30. HONORS 188: SOUTH KOREA'S RESPONSE TO COVID-19

Presenters: Clara Krause & Micah Link

Faculty nominator/mentors: Mary Canales, Nursing & Mohammad Alasagheirin, Nursing

The modern world is experiencing a pandemic of epic proportions. The Covid-19 pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), provided a "teachable moment" for students enrolled in HNRS 188 Critical Issues in Global Health. The Covid-19 country assignment was designed specifically to connect the course with the evolving global pandemic situation. Students, working in assigned pairs, examined how Covid-19 affected one specific country through production of 4 videos during the semester. Students uploaded their videos to the Canvas discussion board so classmates could learn, in total, how the pandemic affected 11 different world regions.

### 31. HONORS 188: INDIA'S RESPONSE TO COVID-19

Presenters: Ellie Decker & Keaten Deets

Faculty nominators/mentors: Mary Canales, Nursing & Mohammad Alasagheirin, Nursing

The modern world is experiencing a pandemic of epic proportions. The Covid-19 pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), provided a "teachable moment" for students enrolled in HNRS 188 Critical Issues in Global Health. The Covid-19 country assignment was designed specifically to connect the course with the evolving global pandemic situation. Students, working in assigned pairs, examined how Covid-19 affected one specific country through production of 4 videos during the semester. Students uploaded their videos to the Canvas discussion board so classmates could learn, in total, how the pandemic affected 11 different world regions.

## CHANCELLORS ROOM

moderators: Anakah Denison + Devion Rehbein

Zoom link: <https://uwec-edu.zoom.us/j/85324849595?pwd=NEJOZFBTS1ZtS2ltcHE4SURPNiFiZz09>

### 32. STABILITY BOUNDS FOR SAMPLING ERASURES

Presenter: Tyler Gonzales

Faculty nominator/mentor: Sam Scholze, Mathematics

The Shannon-Whittaker Sampling Theorem states that a frequency bounded signal can be completely determined by its sampled values on a sufficiently small grid. Thus, the theorem allows us to convert analog signals to digital



signals by sampling (or evaluating) the signal at these points. In prior work, it was shown that if a signal is oversampled, and if some of the sampled values are lost when transmitting the signal, then it is still possible to perfectly reconstruct the signal. However, in certain situations, the reconstruction algorithm is very unstable. In Tyler's talk, stability bounds on the reconstruction algorithm will be provided. These bounds allow us to determine when it is and when it is not feasible to perform the reconstruction.

### 33. GCD OF SUMS OF K CONSECUTIVE FIBONACCI, LUCAS, AND GENERALIZED FIBONACCI NUMBERS

Presenters: Dan Guyer

Faculty nominators/mentors: aBa Mbirika, Mathematics; Sam Scholze, Mathematics

We explore the sums of  $k$  consecutive terms in the generalized Fibonacci sequence given by the recurrence  $G_n = G_{n-1} + G_{n-2}$  for all  $n$  greater than or equal to 2 with integral initial conditions  $G_0$  and  $G_1$ . In particular, we give precise values for the greatest common divisors (GCDs) of all sums of  $k$  consecutive terms. When  $G_0 = 0$  and  $G_1 = 1$ , we yield the GCD of all sums of  $k$  consecutive Fibonacci numbers, and when  $G_0 = 2$  and  $G_1 = 1$ , we yield the GCD of all sums of  $k$  consecutive Lucas numbers. We give two tantalizing characterizations for the GCD of all sums of  $k$  consecutive generalized Fibonacci numbers, one involving a simple formula in  $k$  and another involving generalized Pisano periods of the generalized Fibonacci sequence modulo an integer  $m$ . Although the two equivalent characterizations look vastly different, the fact that they coincide leads to some surprising and delightful new understandings of the Fibonacci and Lucas numbers.

### 34. INHARMONICITY IN GUITAR STRINGS

Presenter: Chris Murray

Faculty nominator/mentors: Scott Whitfield, Physics & Astronomy; Kelly Wonder, McNair Program

In a real vibrating string in a musical instrument, the pitch that is produced deviates from that predicted in a very simple idealized model. In acoustical physics this deviation is referred to as inharmonicity. We investigated the role that inharmonicity plays in the pitch of 26 types of guitar strings, both monofilament and wrapped. Inharmonicity is characterized by a single parameter, usually denoted as  $B$ , which reflects the material composition of the string, its shape and tension. We measured this inharmonicity parameter  $B$  and compared its value to a direct calculation based on a model equation. We found excellent agreement between the two determinations of  $B$  for monofilament strings, but generally poor agreement for wrapped strings which are typical of the lower pitched strings on a guitar (E, A and D).

## SESSION IV: 4:30 – 5:30 P.M.

**CENTENNIAL ROOM**

moderators: Hannah Heider + Micah Link

Zoom link: <https://uwec-edu.zoom.us/j/88530032255?pwd=QW5nMlkwTkJCS0JlbjhFMWRpQUUUT09>

### 35. LIMITATIONS AND BARRIERS FACED BY LATINX ELL'S IN UNITED STATES EDUCATION PROGRAMS

Presenter: Marissa Rahn

Faculty nominator/mentors: Paul Hoff, Languages & Manuel Fernández, Languages + Latin American and Latinx Studies

This presentation addresses the inequalities faced by the Latinx English Language Learner (ELL) population by examining the barriers built through a history of language segregation, Language Instruction Education Programs, flaws in financial funding policies, and unequal assessment practices in United States education. Despite protective laws that exist calling for equal education regardless of language, economic status, race, and ethnicity, these students face added obstacles in their learning that hinder them from reaching the same standards as their peers.

Latinx students remain segregated across districts, English pull out continues, and drop-out rates are comparatively high for the Latinx ELL student population. Through a review of essential data, the research draws attention to the holes in applied educational practices, such as assessment and language instruction methods, that do not follow evidence-based approaches called for by laws requiring equal access to education. This presentation further explores successful patterns of language instruction, funding, and assessment that should be followed to reliably enforce anti-segregation policy and create an equal education system that benefits all students alike.

### 36. DOCUMENTING THE UNDOCUMENTED: COVID-19 ORAL HISTORIES & IMMIGRANT WORKERS IN RURAL WISCONSIN (NURSING)

Presenters: Caleb Aronson, Dawsen Cossalter, Halle Hurst, Taylor Johnson, Allison Seehusen, Meghan Sommers, Carly Swanson & Vanessa Tettamanzi

Faculty nominator/mentors: Cheryl Jiménez Frei, History; Lisa Schiller, Nursing & Lorraine Smith, Nursing

At the onset of the COVID-19 pandemic, UWEC's Public History Program and McIntyre Library joined with the Chippewa Valley Museum to launch the Chippewa Valley COVID-19 Archive (CVCA), a rapid-response project archiving oral histories and artifacts related to COVID-19 and its impacts in Western Wisconsin. One of the imperatives of the archive is to preserve a diverse picture of the pandemic's effects across our communities. With this goal in mind, Documenting the Undocumented is working to preserve oral histories with migrant and undocumented Latinx farmworkers, who have become the essential—but often silenced—backbone of Wisconsin's dairy industry. Documenting these experiences will be essential for future scholars, students, and policymakers to understand COVID-19's impacts in the rural Midwest, as well as the intersections of race, access, and structural inequality the crisis has highlighted. This multi-disciplinary project brings together students and faculty in History, Languages, and Nursing, and the oral histories we collect will be available on CVCA as well as A Journal of the Plague Year, a global COVID-19 archive created by Arizona State University.

### 37. DOCUMENTING THE UNDOCUMENTED: COVID-19 ORAL HISTORIES & IMMIGRANT WORKERS IN RURAL WISCONSIN (SPANISH + HISTORY)

Presenters: Claire Ganschow, Lucinda Hobbs, Alexis Polencheck, Breida Torres Berumen & Wendy Villalva

Faculty nominator/mentors: Cheryl Jiménez Frei, History; Elena Casey, Languages

At the onset of the COVID-19 pandemic, UWEC's Public History Program and McIntyre Library joined with the Chippewa Valley Museum to launch the Chippewa Valley COVID-19 Archive (CVCA), a rapid-response project archiving oral histories and artifacts related to COVID-19 and its impacts in Western Wisconsin. One of the imperatives of the archive is to preserve a diverse picture of the pandemic's effects across our communities. With this goal in mind, Documenting the Undocumented is working to preserve oral histories with migrant and undocumented Latinx farmworkers, who have become the essential—but often silenced—backbone of Wisconsin's dairy industry. Documenting these experiences will be essential for future scholars, students, and policymakers to understand COVID-19's impacts in the rural Midwest, as well as the intersections of race, access, and structural inequality the crisis has highlighted. This multi-disciplinary project brings together students and faculty in History, Languages, and Nursing, and the oral histories we collect will be available on CVCA as well as A Journal of the Plague Year, a global COVID-19 archive created by Arizona State University.

## MENOMINEE ROOM

moderator: Morgan Mack

Zoom link: <https://uwec-edu.zoom.us/j/84237913488?pwd=VG5PRjRHcUdoMURrQlZnSjErMlpvdz09&from=addon>

### 38. EMOTIONALITY IN CLIMATE CHANGE COMMENTARY

Presenters: Emma Dimick, Angela Hugunin, Olivia Misorski & Ben Worner

Faculty nominator/mentors: Kris Knutson, Communication + Journalism; Jim Boulter, Chemistry + Watershed Institute; & Eric Jamelske, Economics

Climate change, a pressing and existential threat, is thought of as a contentious issue. Curiosity about how climate change is perceived in such divergent ways has guided our research and led us to ask, “How do an individual’s beliefs and attitudes about climate change affect the emotions they display when communicating about it?” In Summer 2017, data were collected via an online survey resulting in approximately 3000 responses from a demographically representative US American population. From this survey, we examined a random subset of open-ended responses. We were especially interested in the emotionality in the open-ended responses because knowledge of emotionality can help us develop more effective messages and messaging strategies. Using thematic analysis, open-ended responses to the prompt, “What is the first thing that comes to mind when you hear, ‘climate change’ or ‘global warming’?” were coded. Our analyses indicate anger and disgust dominate the messages written by climate deniers while fear and sadness are most prevalent in the messages written by climate acceptors. These findings can help communications professionals better target messages about climate change.

### 39. BRINGING CLARITY FROM CHAOS: NOTES ON THE CREATIVE NONFICTION PROCESS

Presenters: Angela Hugunin & Katie Johnson

Faculty nominator/mentor: BJ Hollars, English

Powerful storytelling lies at the intersection of research and personal experience. This collaborative presentation will consist of readings from creative nonfiction pieces from both Katie Johnson and Angela Hugunin, seniors studying English, followed by a conversation about their creative processes and approaches to memoir. While their works explore different topics, their approaches to reaching a wide range of readers involve research, self-reflection, and careful attention to craft.

### 40. PRESENTATIONS AND CONVERSATIONS ON RUMINATIONS AND FIXATIONS: THE BEHIND-THE-SCENES STORY OF THE FORMATION OF A CREATIVE WRITING PODCAST

Presenters: Devin Colburn

Faculty nominator/mentor: BJ Hollars, English

This presentation will focus on Devin Colburn's newly created podcast "Presentations and Conversations on Ruminations and Fixations: A Podcast About Creative Writing" which is currently being produced in cooperation with The Heyde Center for the Arts, where Devin is interning. By offering the behind-the-scenes story (and challenges) of this new medium, he hopes to inspire others to stretch their creativity similarly. This podcast serves first as an avenue for presenting my creative work, as each episode will start off with me reading one of my pieces. And after each oration will be a section where me and a knowledgeable cohost will discuss the content of the piece as well as craft elements.

## HO-CHUNK ROOM

moderators: Megan Gosian + Ally Wendt

Zoom link: <https://uwec-edu.zoom.us/j/88582564245?pwd=Mm5NR1NuRjNSWkl6R1dCNDNvTkRuQT09>

### 41. CHANGING PERCEPTIONS OF INCLUSION: THE ROLE OF A UNIVERSAL DESIGN FOR LEARNING FRAMEWORK IN PRE-SERVICE TEACHER PREPARATION

Presenters: Mason Chartier & Ashley Raisbeck

Faculty nominator/mentor: Karsten Powell, Special Education and Inclusive Practices

This study focuses on how instruction utilizing a Universal Design for Learning (UDL) framework influences secondary pre-service general educators' knowledge and perceptions of educating students with disabilities. Though inclusion of students with disabilities into the general education classroom is widely accepted in secondary schools, pre-service educators complete limited coursework needed to successfully include these students. For this study, 29 pre-service general educators completed pre- and post-course surveys which focused on students' perceptions of—and preparation for—inclusive education. Additional measures included inclusive lesson plans that participants developed which illustrate how participants implemented UDL principles. The survey allowed us to examine six

constructs, two of which indicated significant change: (a) participants' efficacy for including students with disabilities in their classrooms and (b) their knowledge and skills associated with UDL. Findings indicate that pre-service educators may require more than one inclusive methods course to develop their inclusion-related skills. Additional recommendations include providing pre-service teachers with a placement that involves inclusion with students with disabilities and a collaboration course between pre-service special educators.

#### 42. DATABASE DEVELOPMENT FOR ACCESSIBILITY/ADAPTATIONS FOR PEOPLE WITH SPECIAL NEEDS

Presenters: Tessa Ferry, Katie Henschell, & Abbie Sonstegard

Faculty nominator/mentor: Lee Rasar, Music & Theatre Arts

This project involved integration of data from multiple faculty – student collaborative projects through ORSP and CETL to create a searchable database of adaptations which allow accessibility for music engagement for people with special needs in public school settings. It is also applicable for adults with special needs and in other settings. The project was intentionally created to be accessible to students, their families and significant others, educators, health care practitioners, and the general public. It allows filtering in multiple categories based on type of musical engagement (singing, dancing/moving to music, performing on instruments, listening to music, composing, conducting, and reading music), national standards that can be connected with that engagement for lesson planning, type of goal areas (motor, cognitive, language, social, emotional, behavioral), and type of exceptionalities for which accommodations need to be made. A technology major joined forces with a music major and a student with a topical music minor, including a Blugold Fellow, to provide an outsider view for what pieces to include and how to easily access and efficiently use the database.

#### 43. IMPLEMENTING EDI INTO STUDIO ART EDUCATION

Presenter: Mackenzie Mevis

Faculty nominator/mentors: Cedar Marie, Art and Design & Stephanie Turner, English

As educators we have the unique opportunity to expand students' knowledge and understanding of cultures outside of their own. Art Education student Mackenzie Mevis discusses their Scholarship of Teaching and Learning collaboration project with Professor Cedar Marie to include EDI initiatives in a first-year studio art course. The process of redesigning the curriculum required us to examine and reflect on the ways we could better serve the needs of first year Art & Design students using an EDI Lens.

#### CHANCELLORS ROOM

moderators: Anakah Denison + Sarah Landeau

Zoom link: <https://uwec-edu.zoom.us/j/82609764405?pwd=a1FVYWVIMUY1eHpjUXNzTFhxT1FzQT09>

#### 44. STRUCTURAL AND ENERGETIC PROPERTIES OF OC–BX<sub>3</sub> COMPLEXES: COMPUTATIONS AND IR SPECTROSCOPY

Presenter: Jordan Munos

Faculty nominator/mentor: Jim Phillips, Chemistry

Research in the Phillips group is concerned with “donor-acceptor” complexes that exhibit novel structural and energetic properties. A donor-acceptor complex refers to an association of two molecules; a “donor”, which donates a lone pair of electrons to an “acceptor”, which accommodates it via an empty bonding site. Here, the specific focus is complexes of carbon monoxide with boron trihalides (OC–BX<sub>3</sub>, with X = F, Cl, and Br), which exhibit evidence for “bond-stretch” isomerism. This refers to the idea that a molecule can have two distinct structures that differ only by the length of a specific bond. We have used quantum-chemical computations (computer simulations of the bonding) to obtain structures, binding energies, frequencies, and B-C potential energy curves (energy vs. of B-C distance). We have also conducted low-temperature, matrix-isolation IR spectroscopy experiments, which involve trapping the complex at 5-10K in solid neon and recording its infrared spectrum. At this

point, even though high-level theory predicts distinct structure for both OC–BCI<sub>3</sub> and OC–BBr<sub>3</sub>, we observe only one form in the experiments.

#### 45. THREE-STATE PH-DRIVEN BIARYL LACTONE MOLECULAR SWITCHES WITH AMINE DONORS

Presenter: Aaron Bruckbauer

Faculty nominator/mentor: Bart Dahl, Chemistry

Biphenyl lactones with amine donor groups and nitro or cyano acceptors should be great candidates for molecular-based electronics and sensing applications. Research by our group previously demonstrated two-state molecular switches using weaker methoxy donor groups on biphenyl lactones via lactone cleavage at high pH and reformation at low pH, which affects the optical properties of these switches. We are now researching the possibility to enhance the optical properties by incorporating dimethylamine or diphenylamine donor groups. This allows for a third switch state increasing the molecules usefulness as a pH sensor by creating a narrow range of pH available for the ON state. Like switches previously studied by our group, the biaryl switches should become non-planar at high pH (OFF state – lactone cleavage) and planar at low pH (ON state – lactone formation). However, a third OFF state exists via amine protonation at very low pH which will cause a third OFF state for the molecule. The ON state should result in visibly colorful switches, the OFF state should result in visible changes in appearance.

#### 46. INVESTIGATION OF THE EFFECTS OF VARIABLE-SIZED POLYETHYLENE GLYCOL ON THE CONFORMATION AND FUNCTION OF PROLYL-TRNA SYNTHETASE USING EXPERIMENTAL AND COMPUTATIONAL METHODS

Presenter: Jessica Liebau

Faculty nominator/mentor: Sanchita Hati, Chemistry

Poly (ethylene glycol) (PEG) is hydrophilic, highly flexible, non-toxic, and non-immunogenic. PEG has versatile applications in proteomics and biological research as it is believed to be biologically inert. For example, PEG2000 (molecular weight is 2000 g/mol) is one of the components of the Pfizer-BioNTech COVID-19 Vaccine. However, recent studies have demonstrated that PEG can alter conformation (three-dimensional structure) and thereby the function of cellular proteins. The molecular mechanism of the impact of PEG on protein function is not completely understood. Present experimental studies suggested that the impact of PEG on protein function and the type of protein-PEG interactions depends on the molecular weight of PEG molecules. To have a better understanding of the impact of PEG on protein conformation and function, the protein prolyl-tRNA synthetase (ProRS) has been chosen. ProRS specifically catalyzes the covalent attachment of proline to tRNA<sup>Pro</sup>, a crucial step in protein biosynthesis in all living organisms. The molecular mechanism of PEG-protein interactions has been probed using enzyme kinetics, fluorescence spectroscopy, and molecular modeling. The preliminary results of our study will be presented.

### INDEX OF PRESENTERS & FACULTY NOMINATORS/ADVISORS

Name	Major(s)/department	presentation #
Alasagheirin, Mohammad H.	Nursing	30, 31
Alix, Twyla Jo	Communication, Organizational	10
Alvergue, José F.	English	12
Aronson, Caleb	Nursing	36
Aschenbrenner, Ann P.	Nursing	7, 8
Blaney, Ethan	Management-Entrepreneur	29
Bleske-Rechek, April L.	Psychology	23

Name	Major(s)/department	presentation #
Booth, Emma	Nursing, Comprehensive	8
Boulter, James E.	Watershed Institute	16, 17, 38
Bruckbauer, Aaron	Chemistry, A.C.S.	45
Canales, Mary K.	Nursing	30, 31
Casey, Elena Nicole	Languages	37
Charles, Kalli	Communication, Comm Studies	9
Chartier, Mason John	Sped, Specific LD MCEA	41
Christopherson, Shelby Lynn	Nursing, Marshfield BSN	7
Cleary, Patricia Anne	Chemistry	4
Colburn, Devin Paul	English, Creative Writing + French	40
Collins, Delaney Elizabeth	Social Work + Psychology	21
Cossalter, Dawsen Jade	Nursing	36
Culhane, Maddie	Marketing	17
Dahl, Bart J.	Chemistry	45
Decker, Ellie Rose	Nursing	30
Deets, Keaten Josef	Undeclared	30
DeGrave, Jeff R.	Intercultural Immersion	14
Dimick, Emma Rae	Biol, Ecol & Envir Biology	38
Donahue, Rita Joy	Nursing, Marshfield BSN	7
Dvorak, Hannah	Biochem/Molecular Biology + Philosophy	1
Eggen, Reggie Noelle	Environment Public Health	5
Fernández, Manuel	Languages + Latin American and Latinx Studies	13, 14, 35
Ferry, Tessa Flynn	Music + Psychology	42
Galloway, Elizabeth Grace	Nursing	6
Ganschow, Claire Elizabeth	Latin American & Latinx Studies	13, 37
Gonzales, Tyler Jules	Math, Research	3, 32
Grunzke, Savanna Rose	Geography, Environmental	17
Guthman, Pamela Lynn	Nursing	6
Guyer, Dan	Math, Research	33
Hartnett, Nate	Materials Science & Engineering	19
Hati, Sanchita	Chemistry	46
Henschell, Katie	Computer Science + Mathematics	42
Hlas, Anne Cummings	Languages	24
Hobbs, Lucinda	Nursing + Spanish	37
Hoff, Paul J.	Languages	35
Hollars, BJ	English	39, 40
Hugunin, Angela Jean	English, Creative Writing + French	38, 39
Hurst, Halle	Nursing + Spanish	36
Ihinger, Phil	Geology	3

Name	Major(s)/department	presentation #
Irlbeck, Kayla Sue	Economics, Business	28
Islam, Rakib	Computer Science	15
Jamelske, Eric	Economics	16, 17, 28, 29, 38
Jewell, Matthew	Materials Science & Biomedical Engineering	19
Jiménez Frei, Cheryl	History	36, 37
Johnson, Katie	English, Teaching	39
Johnson, Taylor	Nursing	36
Kawak, Katrina Evete	Environment Public Health	5
Kawamoto, Sakumi	Economics, Liberal Arts	16
Kemp, Thomas A.	Economics	27
Klingbeil, Katie L	Economics, Business	29
Knuth, Chloe LeMei	International Business + Management	16
Knutson, Kris	Communication & Journalism	38
Kong, Kaishan	Languages	25
Kovacevic, Damir	Political Science	2
Krause, Clara Dawn	Mathematics, Teaching	31
Kulich, Caleb Alan	Communications, Organizational	17
Larsen, Mark David II	Environment Public Health	5
Ledwith, Zach	Marketing	28
Liebau, Jessica Renee	Biochem/Molecular Biology + Spanish	46
Lindaas, Andrew Dennis	Economics + Political Science	29
Lindseth, Martina U.	Languages	26
Link, Micah Kenneth	Biology, Liberal Arts	31
Liu, Xiaoxue	Accounting	25
Livera, Anna	Communication Sciences & Disorders	18
Long, Philip Sheridan	Biology + Economics	16
Masseti, Madaline	Criminal Justice + Public Health	5
Marie, Cedar	Art & Design	43
Mbirika, aBa	Mathematics	33
Mevis, Mackenzie Ann	Art, Art and Design Educ	43
Meyer, Kasee Ann	Economics + Finance	5
Misorski, Olivia Lynn	Integ Strategic Comm, PR	38
Mitchell, Nora Catherine	Biology	20
Muehlenkamp, Jennifer J.	Psychology	21, 22
Munos, Jordan Alexis	Biochem/Molecular Biology	44
Murray, Chris	Physics, Liberal Arts	34
Nadolny, Jesselyn	Spanish, Teaching	24
Olsen, Jeanette Melissa	Nursing	6
Orwig, Marcy Leasum	Business Communication	10

INDEX OF PRESENTERS [AND] FACULTY NOMINATORS/MENTORS

Name	Major(s)/department	presentation #
Pessman, Brandon Michael Jay	Computer Science	15
Peterson, Jamie Lyn	Psychology, Liberal Arts	23
Phillips, James A.	Chemistry	44
Pierce, Crispin H.	Watershed Institute	5
Polencheck, Alexis Ann	History, Public History	37
Powell, Karsten K	Special Education and Inclusive Practices	41
Raddenbach, Hannah Kate	Psychology + Economics	16
Radtke, Josie Kay	Chemistry, A.C.S.	4
Rahn, Marissa	Spanish, Teaching	35
Raisbeck, Ashley	Sped, Specific LD MCEA Re	41
Rasar, Lee Anna	Music & Theatre Arts	42
Reckin, Katelyn Rose	Management, Oper & SCM + Economics	29
Reif, Rebecca Elizabeth	Latin American & Latinx Studies + Geography	14
Roehl, Megan Marie	Economics + Management, Oper & SCM	27
Rusciano, Jessica Lynn	Nursing	8
Sargent, Linda Louise	Nursing	7
Sather, Thomas W.	Communication Sciences & Disorders	18
Schaupp, Kristin P.	Philosophy & Religious Studies	1
Schiller, Lisa F.	Nursing	36
Schmocker, Kyle William	Accounting	11
Scholze, Sam L.	Mathematics	32. 33
Serna, Alejandra	Business Administration	12
Shuttleworth, Tristan David	Economics, Business	28
Smith, Lorraine	Nursing	36
Sonstegard, Abbie Aleita	Psychology, Liberal Arts	42
Swanson, Carly	Nursing	36
Tentler, Matthew	Pol. Sci., World Politics	2
Tettamanzi, Vanessa Alexis	Nursing	36
Thomas, Paul Jonathan	Physics & Astronomy	3
Torres Berumen, Breida	Biology, Liberal Arts	37
Vetter, Madilyn Nancy	Biol, Ecol & Envir Biology	20
Villalva, Wendy	Biology, Liberal Arts	37
Vriesema, Christine C	Psychology	9
Vue, Joseph	Environment Public Health	5
Wagener, Emily	Psychology, Liberal Arts	23
Wagner, Emily Marie	Psychology, Liberal Arts	22
Wells, Briunna	Nursing	7
Whitfield, Scott	Physics & Astronomy	34
Wiederhold, Greta Lynn	German, Teaching	26



<b>Name</b>	<b>Major(s)/department</b>	<b>presentation #</b>
Wonder, Kelly	McNair Program	12, 20, 21, 34
Worner, Ben	Liberal Studies	38
Worzalla, Katelyn	Social Work, Liberal Arts	17
Yin, Yutong	Business Finance	25
Zenner, Madelyn Rose	Business Finance	28
Zhang, Jidong	Accounting & Finance	11