

CENTER FOR EXCELLENCE IN TEACHING AND LEARNING

SCHOLARS AT WORK

January 5, 2023

Welcome to the 7th annual Scholars at Work Conference! The conference seeks to showcase faculty, staff, and graduate students' teaching, research, and innovative activities with peers and colleagues around our institution.

Keynote: How the Faculty Fellows Program Supports Faculty's Scholarly Innovations and Teaching Innovation

PANELISTS: AARON BUDGE, PH.D., P.E, ACTING DEAN FOR CSET, AND KAREN LYBECK, PH.D, PROFESSOR OF ENGLISH

Description: This panel discussion will feature Dr. Aaron Budge and Dr. Karen Lybeck, who will discuss CETL's Faculty Fellows program. They will also discuss the benefits for faculty who engaging in these programs and how the program can support faculty member's Professional Development Plans and Reports. Lastly, they will discuss the benefits for student success and our campus community.

Zoom Link: <https://minnstate.zoom.us/j/96899405156>

ACUE Virtual Pinning Ceremony

PRESENTERS: JONATHAN PAVER, ED.D, DIRECTOR OF ONLINE PROGRAMS AND ELIZABETH HARSMA, PH.D., INSTRUCTIONAL DESIGNER, ITS

Minnesota State Mankato ONLINE sponsored faculty in or affiliated with ONLINE programs to participate in the inaugural cohort of the Effective Online Teaching Practices courses offered by the Association of College and University Educators (ACUE). Each week starting in February 2022, the cohort of faculty participated in the course, applied new knowledge to their online classroom, and reflected on their learning. Upon completion, they earned a nationally recognized certificate in Effective Teaching Practices. Join us for a celebration of their achievement during the Virtual Pinning Ceremony and learn more about their experience.

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Schedule:

9:00-10:00 am

KEYNOTE

10:00-10:30 am

ACUE PINNING CEREMONY

10:40-11:30 am

SESSION A

11:40 am-12:30 pm

SESSION B

12:30-1:30 pm

ACUE EFFECTIVE ONLINE TEACHING PRACTICES INFORMATION SESSION

1:30- 2:20 pm

SESSION C

2:30-3:20pm

SESSION D

3:30-4:00 pm

CLOSING

A member of the Minnesota State system and an Affirmative Action/Equal Opportunity University. Individuals with a disability who need a reasonable accommodation to participate in this event, please contact the Department of Sociology at 507-389-1561 (V) or 711 (MRS/TTY) at least 5 days prior to the event. This document is available in alternative format to individuals with disabilities by calling the above numbers.



MINNESOTA STATE

Minnesota State University, Mankato,
A member of Minnesota State



Room I

Where They Fit: The Under-Representation of Minority Students in Advanced High School Coursework in Communities of New Diversity

PRESENTER: JOEL LEER, PH.D., EDUCATIONAL LEADERSHIP

This paper examines the process of course selection by minoritized populations in two public high schools with new diversity in peri-urban communities in the Upper Midwestern United States to illuminate potential reasons and solutions for the continuing disproportionality between school demographics and the number of minoritized students taking and succeeding in advanced courses. Dr. Leer's presentation will focus on truly understanding what access to these courses means to both students and their teachers.

Three-Dimensional Science Instruction: Discovering a High Impact Instructional Practice in Teacher Education

PRESENTER: TRISH ARNOLD, PH.D., ELEMENTARY AND LITERACY EDUCATION

This presentation will share results from a mixed method study that investigated the impact of an integrated NGSS-designed "working shop" learning sequence within an introductory science methods course on pre-service teachers' perceptions of their self-efficacy when teaching science using three-dimensional instruction. Additionally, the successes and challenges of implementing the integrated NGSS-designed "working shop" learning sequence will be discussed, leaving viewers with evidence of a promising high impact instructional practice for teacher education.

Session A

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Room II

Creating a Community of Support to Dismantle Microaggressions on Campus

PRESNTORS: ANGELICA AGUIRRE, PH.D., SUDARSHANA BORDOLOI, PH.D., ALFREDO DUPLAT, PH.D., KERRY DIEKMANN, PH.D., PAKOU LEE, JESSICA SCHOMBERG

Microaggressions are forms of exclusion that are often normalized as acceptable social interactions. Microaggressions undermine the mission and values of higher education while causing great emotional and physical harm to victims. The presenters will share their experience building a year-long cohort program fostering a community of support and providing tools to dismantle microaggressions on campus. Through discussion and shared brainstorming, participants will develop strategies to address and reduce microaggressions on their campuses.

Engaging Learners with Universal Design for Learning and Antiracism

PRESNTORS: JESSICA SCHOMBERG, LIBRARY AND LEARNING AND ELIZABETH HARSMA, PH.D., INFORMATION TECHNOLOGY SOLUTIONS

The presenters will share ideas for applying both the Universal Design for Learning framework and antiracist teaching methods to courses in higher education. Definitions of key concepts related to these frameworks will be followed by 10 teaching strategies. Neuroscience and education research suggest that all students can be expert learners if barriers are removed. Antiracist UDL helps instructors address barriers to learning through curriculum, course design, and instructional methods.

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Room III

Ethics and New Health Technologies: An Innovative Scoping Review and Descriptive Analysis of the Literature

PRESNTORS: SARAH OGILVIE, DNP, APRN, CPHQ, AND HANS-PETER DERUITER, PH.D., RN, SCHOOL OF NURSING

When researching new heath technologies, there is an increasing need for awareness and critical thinking regarding the potential unintended consequences and ethical dilemmas that may arise from using new technologies. However, many ethical issues arise post-implementation. This presentation includes data from both a recently published descriptive analysis and a recently published scoping review on this topic. Conclusions from both studies show that very few researchers deeply considered the ethical implications of new health technologies. These research projects were a partnership between MSU Mankato and Halmstad University in Sweden.

What Can a Remote Access Hardware Trojan do to a Network-on-Chip?

PRESENTER: NASEEF MANSOOR, PH.D., COMPUTER INFORMATION SCIENCE

Interconnection networks such as Network-on-Chips (NoCs) for multi/many-core processors are critical infrastructure of the system as they enable data communication among the processing cores, caches, memory, and other peripherals. Given the criticality of the interconnects, the system can be severely subverted if the interconnection is compromised. The threat of Hardware Trojans (HTs) penetrating complex hardware systems such as multi/many-core processors is increasing due to the increasing presence of third-party players in a System-on-chip (SoC) design. Even by deploying naïve HTs, an adversary can exploit the NoC backbone of the processor and get access to communication patterns in the system. This presentation discusses the design of an HT embedded in the NoC router that can leak sensitive information regarding traffic patterns to an external malicious attacker; who, in turn, can analyze the HT payload data with advanced algorithms such as machine learning to infer the applications running on the processor or reverse engineer architectural Intellectual Property (IP) of the system. This presentation also entertains the idea of using a routing obfuscation technique to achieve a trade-off between defense against HTs and performance penalties.

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Room I

Undergraduate Education: Making the Psychology Major Count for Students

PRESNTORS: ANGELICA AGUIRRE, PH.D., BRADLEY ARZSNOV, PH.D., KRISTIE CAMPANA, PH.D., ANDI LASSITER, PH.D., ADAM STEINER, PH.D., EMILY STARK, PH.D., PSYCHOLOGY

Faculty from the Psychology department will discuss capstone experiences, assessments, and instructional modules that encourage undergraduates to hone their skills and reflect on how those skills could contribute to their future, whether it is in the workforce or graduate school. In this session we hope to continue the discussion to identify best practices and share stories and examples.

An Industry-Sector and Community-Needs Approach to Interdisciplinary Programming

PRESNTORS: BRIAN F. MARTENSEN, PH.D., AND MOLLY SCHAEFER, ED.D., MINNESOTA POLYTECHNIC AND APPLIED LEARNING INSTITUTE (MINNPOLY)

We present an “industry-sector” and “community-needs” approach to creating and implementing interdisciplinary, degree programs being implemented by MSU’s newly created Minnesota Polytechnic and Applied Learning Institute (MinnPoly).

This model strongly supports integrated, interdisciplinary learning as well as evidence-based practices for student success that includes increased retention (including major switching), self-efficacy, career advancement, and diversity. In turn, industry and communities receive the workforce and economic support needed in a more comprehensive way.

Session B

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Room II

The Effect of a Flipped Classroom Teaching Approach on Improving Students' Performance and Decreasing the Academic Equity Gaps in Gateway Course.

PRESNTORS: LYUDMYLA STACKPOOL, PH.D., BIOCHEMISTRY, CHEMISTRY, AND GEOLOGY, AND GALKANDE (IRESHA) PREMARATHNA, PH.D., MATHEMATICS AND STATISTICS

Gateway General Chemistry courses help students learn the foundational skills and knowledge to succeed in upper-division chemistry courses that are required for all degrees in chemistry or biochemistry, several majors in biological sciences, and other non-science majors. Unfortunately, for many students, these courses can work as “roadblocks” that slow down a student’s progress, leading to poor success rates, pass rates, and retention rates. A redesign of the gateway Chemistry 201 course in favor of high-impact practices: a flipped classroom teaching/learning model was evaluated using logistic regression analysis of student grades for the two spring semesters 2021/22 and the qualitative summative content analysis in analyzing the data obtained from the student survey.

Identifying the Courses Correlated with Success in First Year Gateway Course in ME Program

PRESENTOR: PAVAN KARRA, PH.D., MECHANICAL AND CIVIL ENGINEERING

The mechanical engineering program has consistently had low retention after the ME 201 course. The course is Introduction to Problem Solving and Design. The project studies the data from the last twenty years to identify which courses are correlated with success in ME 201. This will allow future instructors of ME 201 to identify potential students at risk of DWF (withdraw or grades of D,F) and possibly provide remedial instruction.

Session B

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Room III

A CURE Model of Incorporating Research Skills in a Social Psychology Course

PRESENTOR: EMILY STARK, PH.D., PSYCHOLOGY

In this presentation, I will describe how I utilized a Course-Based Undergraduate Research Experience [CURE] to build research skills in a large undergraduate course [Psy 340: Introduction to Social Psychology]. The goal was to go beyond a typical research paper assignment to give students opportunities to develop skills in data collection and analysis, information search and article analysis, and effective written and oral communication. I will share specific examples and tips for other instructors.

Stories of Impact- Undergraduate Research, Scholarly, and Creative Activities

PRESENTOR: PATRICK TEBBE, PH.D, UNDERGRADUATE RESEARCH CENTER

Undergraduate research is often described as a high impact practice. It has been found to promote student engagement, retention, and future success. However, little time is spent discussing the specific mechanisms or outcomes that justify this label. This presentation will use micro-stories to explore the experiences of students with undergraduate research and the resulting impacts. Lessons learned from programs operated through the Undergraduate Research Center will be shared, as will results of recent alumni surveys.

Session B

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Room 1

Zoom Link

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ACUE Effective Online Teaching Practices Information Session

PRESENTOR: JONATHAN PAVER, ED. D. DIRECTOR OF
ONLINE PROGRAMS AND ELIZABETH HARSMA,
INSTRUCTIONAL DESIGNER, INFORMATION TECHNOLOGY
SOLUTIONS

Minnesota State Mankato ONLINE will again be sponsoring faculty to participate in the Effective Online Teaching Practices course offered by ACUE starting in Fall 2023. Join us for this information session with ACUE course facilitators and ACUE staff to see the course in action and learn more about the timeline for registration.



PHILOSOPHY LITERATURE

Room I

Decentering Whiteness in Communication Sciences & Disorders

PRESENTORS: MEGAN MAHOWALD, PH.D., R. DANIELLE SCOTT, PH.D., H. SHEEN CHIOU, PH.D., AND KRISTI OEDING, AU.D. CCC-A, SPEECH, HEARING, AND REHABILITATION SERVICES

Speech-language pathology is the fourth whitest profession and has a long history of linguisticism, racism and ableism. In Summer of 2020, our program began making actionable changes to be a more racially just and equitable program. In Fall 2021, we began an Action Assessment project and during the yearlong action assessment program, we examined the impact of changes already made and examined appropriate next steps to continue work in racial equity and social justice.

The Urgency of Anti-Racist Mentorship: Calling the Elephant in the Ivory Tower by its Name

PRESENTOR: YALDA HAMIDI, PH.D., GENDER AND WOMEN'S STUDIES

The anti-racist mentorship program addresses the urgency of mentoring graduate students of color while addressing struggles with microaggressions and racism. An anti-racist mentorship program utilizes research, pedagogy, and mentorship to raise awareness, make a brave space, and advocate for restorative justice for graduate students. I argue that without calling the elephant by its name, a kind of mentorship that solely relies on the discourse of professionalism does not effectively support scholars of color.

Session C

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Room II

Differentiating and Open Sourcing Cross-listed Courses

PRESENTOR: DAN MOEN, PH.D., FAMILY CONSUMER SCIENCE

The aims of this project are to (1) fully differentiate FCS 501 from FCS 401 by utilizing course-level appropriate peer-reviewed open-access content (free articles) with a racial equity 2030 focus. Open-access resources will be recent/applicable and take the place of a standard textbook (2) revamp both syllabi, and (3) incorporate new D2L content, activities, and student learning assessments (both courses).

Online Resources, Equity, and Ethics

PRESENTORS: NAZLI WODZINSKI, PH.D., MECHANICAL AND CIVIL ENGINEERING, AND JEFF PRIBYL, PH.D. BIOCHEMISTRY, CHEMISTRY, AND GEOLOGY

In this Decreasing Opportunity Gaps in Gateway Courses Cohort paper, we studied what percent of engineering students were using online study resources and how they utilize these resources. The data of the study is collected via an anonymous survey that was filled by engineering students who took Mechanics Series courses at Minnesota State University, Mankato. We aimed to determine if the widely used online resources, most of which require a membership fee, are creating an opportunity gap and an ethical dilemma.

Session C

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THEATRE

Room I

Towards a Vision for Learning Analytics in Open-Ended, Student-Centered Engineering Program

PRESENTORS: LAUREN SINGELMANN, PH.D., YUEZHOU WANG, PH.D., AND ELIZABETH PLUSKWIK, PH.D., INTEGRATED ENGINEERING

Predictive analytics is becoming increasingly popular in educational institutions, but many of these tools are designed to reduce learning to a few key features that are important in predicting student success. This reduction process becomes increasingly difficult in open-ended educational experiences where there are many possible pathways to success. This presentation will present a framework for learning analytics that is designed to embrace the complexities of learning rather than reducing them. The MNSU Iron Range Engineering program will be used as an example case.

Session D

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ASTRONOMY

Room II

Proactive Course Crafting: Goal Area 7, Equity 2030, and English 105

PRESENTORS: NANCY DRESCHER, PH.D., AND KEVIN DOVER, PH.D., ENGLISH

This presentation presents the findings of an Action Assessment Group formed in the English Department to proactively respond to the Minnesota State Equity 2030 initiative and the updated language of Goal Area 7 in the Minnesota Transfer Curriculum. Over the course of a semester, the group met weekly and held vigorous discussions, which ended with the formation of a course mockup: English 105: Race, Rhetoric, and Representation, that we hope might serve as a model.

Student Perceptions of Cultural Responsiveness and Accessibility Efforts in a Gateway Family Science Course

PRESENTOR: DAN MOEN, PH.D., FAMILY CONSUMER SCIENCE

Qualitative and quantitative findings from student (n = 45) perceptions of cultural responsiveness and accessibility efforts in a gateway course (FCS 100 "Personal and Family Living") are discussed. Specifically; diversity, equity, inclusion, and accessibility efforts are reviewed by students who provided demographic, likert, and qualitative data on what is going well and suggestions for improvement.

Session D

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Room III

A Critical Multimethodological Approach for Advancing Equity in Teaching and Learning

PRESENTORS: DEEPA OOMMEN, PH.D., IVANA GUARRASI, PH.D., AND SACHI SEKIMOTO, PH.D., COMMUNICATION STUDIES

This paper proposes a critical multimethodological approach to advancing equity in teaching and learning. In spring 2022, the Department of Communication Studies administered a survey to assess the Department's DEI initiatives. The demographic data revealed that our participants inhabited multiple identity spaces and that the intersectionality of their identities determined their lived experiences. Based on this finding, we highlight how a critical multimethodological approach helps in understanding the complexity of human diversity.

A Mixed Methods Study of the Impact of an Undergraduate Course on the Intercultural Competency of Undergraduate Students

PRESENTERS: ELIZABETH SANDELL, PH.D, AND RYUTO HASHIMOTO, INTERDISCIPLINARY STUDIES

This investigation examined the intercultural competency (ICC) of undergraduate students, during Fall 2021. ICC was defined as "ability to shift cultural perspective and adapt behavior appropriately to cultural differences and commonalities." Data suggested that undergraduates who completed "Introduction to Critical Race Theory" (CRT) scored at a higher level of ICC at the beginning of "Human Relations" (HR) than students without CRT. There were no statistically significant differences between the groups by the conclusion of the HR course.

Session D

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