



**Black Hills State University**

College of Education & Behavioral Sciences  
ED 692 SD STEM Education Conference  
Spring 2024  
1 graduate credit

**Instructors' Contact Information:**

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**Meeting Time and Location:** Huron, SD February 1 – 3, 2024

**Dates of Course:** Conference dates February 1 – 3, 2024 with independent reflection reports due by February 16, 2024.

Financial support provided by a third party enables us to charge a reduced tuition per credit hour for this course.

**Course Description:**

The South Dakota STEM Education conference in 2024 is tailored for educators across all levels, from primary to higher education, who are dedicated to enhancing STEM education. Whether you're a classroom teacher, curriculum developer, administrator, or educational researcher, this conference offers a unique opportunity to gather insights, resources, and inspiration to enrich your STEM teaching practices.

**Cutting-Edge Workshops:** Engage in hands-on workshops led by experts in the field, focusing on innovative teaching techniques, project-based learning, integrating emerging technologies, and adapting curriculum to match the evolving STEM landscape.

**Keynote Addresses:** Gain insights from thought leaders who are at the forefront of STEM education, sharing their visions, research, and experiences that are shaping the future of STEM learning.

**Interactive Panel Discussions:** Participate in panel discussions that address current trends, challenges, and opportunities in STEM education. Collaborate with fellow educators to brainstorm solutions and share best practices.

**STEM Showcase:** Explore a diverse array of student projects, research, and innovations showcased by schools and institutions, highlighting the real-world impact of STEM education on young minds.

**Hands-On Demonstrations:** Immerse yourself in live demonstrations of cutting-edge technologies, educational tools, and interactive resources that can enrich your classroom instruction.

**Networking Opportunities:** Connect with fellow educators, curriculum developers, industry professionals, and researchers who share your passion for STEM education. Forge valuable collaborations that extend beyond the conference.

**Resource Exchange:** Access a curated collection of educational resources, lesson plans, and teaching materials that you can integrate into your STEM curriculum to enhance engagement and learning outcomes.

**Inspirational Success Stories:** Hear inspiring stories from educators who have successfully transformed their classrooms through innovative STEM teaching methods, sparking creativity and fostering critical thinking.

**Experiential Learning:** Immerse yourself in simulated STEM challenges and simulations, providing you with firsthand experience of the engaging and collaborative learning opportunities you can offer your students.

#### **Course Requirements:**

All materials will be provided for registered attendees.

#### **Class attendance policy:**

Students must attend the SD STEM Ed conference in Huron on February 2 and 3, 2024 to be eligible for course credit. Since sessions must be attended in person, there is no option for making up the work. Reflections are due by February 16<sup>th</sup>.

#### **Academic Dishonesty/Plagiarism:**

Cheating and other forms of academic dishonesty run contrary to the purpose of higher education and will not be tolerated in this course. Academic dishonesty includes (but is not limited to) plagiarism, copying answers or work done by another student (either on an exam or on out-of-class assignments), allowing another student to copy from you, and using unauthorized materials during an exam. Academic dishonesty is a serious offense and could result in failure on an assignment or course. To the extent possible, all incidents will be resolved in discussions between the student and faculty member. As necessary, the chair and then the dean may become involved to resolve the issue. If academic dishonesty is established, a report describing the incident and its resolution will be filed in the offices of the dean and provost. In cases where a satisfactory outcome is not achieved through this process, students may appeal to the University's Academic Appeals Committee.

Formal procedures for filing a complaint for academic misconduct are in the Student Conduct Code in the Student Handbook. Cheating and plagiarism are defined in Section 2, Part B, 1. Disciplinary sanctions are outlined in Section 3, Judicial Policies.

#### **Acceptable Use of Technology Acceptable Use of Information Technology Resources:**

While Regental Institutions strive to provide access to computer labs and other technology, it is the student's responsibility to ensure adequate access to the technology required for a course. This may include access to a computer (not Chromebooks, iPads, etc.), webcam, internet, adequate bandwidth, etc. While utilizing any of the information technology systems students, faculty and staff should observe all relevant laws, regulations, BOR Policy 7.1, and any institutional procedural requirements. Emergency Alert Communication In the event of an emergency arising on campus under BOR Policy 7:3, your Regental Home Institution will notify the campus community via the emergency alert system. It is the responsibility of the student to ensure that their information is updated in the emergency alert system. The student's cell phone will be automatically inserted if available and if not, their email address is loaded. Students can at any time update their information in the student alert system.

### **Make-up policy:**

Students must attend the SD STEM Ed conference in Huron on February 2 and 3, 2024 to be eligible for course credit. Since sessions must be attended in person, making up the work is not an option. Written reflections are due by February 16<sup>th</sup>.

### **Course Schedule**

#### **To successfully fulfill this course:**

Register for the course with BHSU and pay \$40 tuition by check (BHSU must receive both registration and check by Feb. 16, 2024.

Attend and log at least eight sessions at the SD STEM Ed Conference in Huron

Reflect on four of the logged sessions

Create one document (Word or PDF) containing your participation log and four reflections. Email this to [Deann.Kertzman@bhsu.edu](mailto:Deann.Kertzman@bhsu.edu) before midnight on February 16, 2024. (Links to documents will not be accepted.) Please put *SD STEM Ed Conference Course* in the subject line.

### **Sessions**

Each of the conference sessions can partially fulfill the participation requirement for successful completion. You need to attend and document participation in at least eight of the conference sessions as presented in the conference program. A sample conference program from last year is included as an example. The 2024 conference schedule will be similar to this example.

#### Friday

Opening Plenary Session and Keynote

Session 1

Session 2

Session 3

Exhibitors and Poster Session

Session 4

Session 5

SDCTM & SCSTA business meetings

Banquet with Keynote Speaker

#### Saturday

Session 6

Session 7

Session 8

Session 9

Session 10

Session 11

## 2023 SD STEM Ed Conference

February 2, 3, 4, 2023

Friday, February 3

Schedule At A Glance

Room	8:00	8:30-9:20	9:30-10:20	10:30-11:20	11:20	11:50-12:50	12:50	1:10-2:00	2:10-3:00	3:00	3:30-4:20	4:30-5:30	5:30	6:30 PM -
Lobby	Registration 7:00 AM - 4:20 PM													
Exhibit Hall	Visit Exhibitors 8:00 AM - 5:00 PM													
Prairie A	Opening Session	The Value of Vertical Alignment Stephanie Higdon, Ashley Armstrong	Fourth Industrial Revolution Workforce: Are We Ready? Stephen Pruitt	[Lunch SETUP]	LUNCH ----- Hosted by Presidents of SDSTA & SDCTM	Global Education in the Science Classroom Kristen Gonsoir	Tropical Research Immersion, Bioinformatics, and Antibiotic Bioprospecting Beth Hunt, Dr. Michael Amolins	Teaching Problem Solving to ALL Students Susan Arnette	SOCIAL	Awards Banquet and Keynote Speaker - Pruitt - Batling Ignorance: 4 Words That Can Change the World My Students Need Me	ChatGPT and AI Chatbots: Navigating the Opportunities and Challenges of this Game-Changing Technology Nicloe Uhre-Balk	TENGS in Eggs Larry Browning, Steve Wignall (Zoom)	Building Safe Solar Viewers Larry Browning	Storylines: What Are They? Where to Find Them? and Are They Right for Me? Tiffany Kroeger
Prairie B														
Prairie C														
Dakota A	Networking, Exhibitors & Poster Session	Light Up the Night! Marie Steckelberg	SD - AAPT Business Meeting & Photo Contest James Stearns, Larry Browning, Darwin Daugaard	Empowering the Next Generation of Foodies Through the Science of Food Dr. Clifford Hall & Cheyenne Edmundson	Bringing Elementary Math to Life Using Drawing Board and Tools Maren Ehley	{OPEN}	SDCTM Business Meeting	Building Thinking Classrooms Sharon Rendon	Wind Power: A New Era of Energy Astrid Northrup, PhD	{Setup Tear Down}	South Dakota Science Assessment - Summative, Interim, and Formative Tools Christina Booth	SDSTA Business Meeting	Engaging Students Through Invention Education/STEM Learning Strategies Across All Content Areas Kristin Thorsen & Hannah Hall	Citizen Science, Cell Phone Colorimetry and Chemistry of Milkweed Bree Oatman
Dakota B														
Dakota C														
Dakota D														
Dakota E														
Dakota F														
Dakota G														
Dakota H														
Symposium	Ret-Poster Session Darwin Daugaard	Focused Observation in Math & Science Classrooms Nicol Reiner	NSU E-Learning: Meeting STEM Needs in South Dakota Ally Bowers, Mary Cundy	Demonstrations and Particulate Diagramming - Can We Increase Student Conceptual Understanding by Doing Both? Matt Miller, Carter Koons	Title: SD Science Olympiad Lauren Kress									
Salon 1														
Salon 2	Share the Classroom Treasures { Free Supplies from other Classrooms/Labs } Help yourself as after 2:40PM on Saturday, these Treasures turn to trash!!!													
Room	8:00	8:30-9:20	9:30-10:20	10:30-11:20	11:20	11:50-12:50	12:50	1:10-2:00	2:10-3:00	3:00	3:30-4:20	4:30-5:30	5:30	6:30 PM -

2023 SD STEM Ed Conference

February 2, 3, 4, 2023

Saturday, February 4

Schedule At A Glance

Room	7:00	8:00-8:50	9:00-9:50	10:00-10:50	10:50	11:30-12:30	12:40-1:30	1:40-2:30	2:40-3:30	3:40-4:15	4:30-6:30
Lobby	Registration 7:00 AM - 3:30 PM										
Exhibit Hall	Visit Exhibitors 8:00 AM - Noon								Registration 7:00 AM - 3:30 PM		
Prairie A		{OPEN}	Affordable Data Collection Technology Larry Browning		Final Networking and Exhibitor Session	LUNCH - - - Hosted by Presidents of SDSTA & SDCTM	{Setup - Tear Down}	Research Quest- FREE Online Investigations from NHMU Lynn Gutzwiller, Rachael Coleman	Utilizing Desmos to Enhance Your Curriculum Jenna Stephens, Michael Birkeland		SDCTM & SDSTA Officers and Conference Leadership meet to reflect & discuss current conference outcomes and strategize for upcoming event (s). Next year's Conference will be February 1, 2, & 3, 2024
Prairie B		Data Analysis on Swings in Baseball Robert Stack	History of Math Robert Stack	{Lunch SETUP}		{Setup - Tear Down}	Computational Thinking: Why it's For Everyone Everywhere Rebecca Myers, Nicole Uhre-Balk	Epigenetics: Sanford PROMISE Resources for your classroom Benjamin Benson, Louisa Otto			
Prairie C	Breakfast for SD PAEMIST State Level Finalists and Past Awardees Allen Hogue, Dr. Jennifer Fowler	Showcase Your Teaching Practice and Win Money (PAEMST) Allen Hogue, Dr. Jennifer Fowler	Application of Dairy Food - Based Science in Your Classroom Dr. Prafulla Salunke and Cheyenne Edmondson			{Setup - Tear Down}	The Ballad of Matt and Larry Continues Larry Browning, Matt Miller	American Chemical Society RAMP - How to Make Your Classroom Safe Matt Miller, Jaque Mann			
Dakota A		Hands-on STEM Activities for Elementary Teachers Leslie Sauder	Elementary Science Made Easy Marie Story	Utilizing Robots to Enhance Problem Solving Skills Rebecca Myers, Nicole Uhre-Balk			Building Thinking Classrooms Sharon Rendon	The Do's & Don'ts of Student Teaching Mark Kreie	Area Model from Kindergarten to Calculus Sharon Rendon	Science Wrap-up and Reflect	
Dakota B		Exploring the Periodic Table with Electron Battleship Chad Ronish	Digging Deep for Discovery at America's Underground Science Laboratory Erin Woodward	Apliaries in Education Spencer Cody			Quarknet taking Physical Science to the Next Level Chad Ronish, Jing Liu	Convergence in the Elementary Classroom Merideth Wald	{ Open }		
Dakota C		Robotics for K-12 Teachers Astrid Northrup, PhD	Wind Power: A New Era of Energy Astrid Northrup, PhD	Engaging All Students using Culturally Relevant Inquiry Based Teaching Practices Rochelle Darville, Ashley Armstrong			{OPEN}	Enhancing Learning with Belonging Nicol Reiner	{ Open }		
Dakota D		{OPEN}	Creating a STREAM Classroom Jan Martin	Life Skills for the Young Lakota/Dakota/Nakota Faith Holmes, Lora Catches			Weaving Science into Other Disciplines at the Elementary Level Louisa Otto, Carly Logan	Dissection Resources for Classroom Use Steven Rokusek	Ipsa Summer Research Experience Bree Oatman, Alvin Dela Cerna, Kathryn Medina Carls	Math Wrap-up and Reflect	
Dakota E		Desmos Classroom Activities & Curriculum Mark Kreie	Desmos Classroom Teacher Dashboard Mark Kreie	Desmos Hangout Mark Kreie			Classrooms to Space Kristine Heinen	Teaching Grade-level Mathematics Standards to the Required Depth Stephanie Higdon	Chem for All! How to Get All of Your Students Talking Ally Bowers		
Dakota F		Using Phenomena in 3D Science to Engage Students and Make Learning Relevant Susan Arnette	Connections - Modeling in Mathematics and Science Nicol Reiner	Tropical Research Immersion, Bioinformatics, and Antibiotic Bioprospecting Beth Hunt, Dr. Michael Amolins			Planbook 101 Emily Graber	CO2 Underground: Soil Biology Respiration Anne Lewis, Bree Oatman	What the Badlands Fossils Tell Us Anne Lewis, Ed Welsh		
Dakota G		Integrating the Oceli Sakowin Essential Understandings into Your Teaching Bree Oatman	The X, Where Bad Things Happen: Avoid It or Own It. Dr. Timothy Masterlark, Dr. Scyller J. Borglum	How I Changed My Teaching and How it Changed My Students Christine Larson			3 Dimensional Lesson and ELA Integration Rachael Coleman, Lynn Gutzwiller	Using the Periodic Table to Identify Radioactive Decay Chains and Isotopes Chad Ronish	Technical College Math Nathaniel Raak, Scott Kortan		
Dakota H		Using Protocols to Integrate Writing Into a 3-Dimensional Science Lesson Rachael Coleman, Lynn Gutzwiller	Family Math 4: The Saga Continues (K-5) Cindy Kroon	Tales of the First Year Implementing BTC Crystal McMachen, Shannon Bren			Tales of the First Year Implementing BTC Crystal McMachen, Shannon Bren	Using Phenomenon to Leverage Student Curiosity (How Small Tweaks Can Pay Big Dividends) Julie Dahl, Ann Anderson	Glitter... Not My Thing. Raya Nagel		
Symposium			Getting Everyone Involved in Science: Expanding Accessibility and Engagement through Engineering John Williams (& Undergraduates)	How Classic Games Can Reinforce Math Skills Kari McRaith, Kelley O'Brien			Meet The Future Teachers Dan Van Peurseam, Vestal, Miller	{ Open }	{ Open }		
Salon 1		{Setup - Tear Down}	STEAM: Materials, Metal Clay, and More! Katrina Donovan, Deborah Mitchell	STEAM: Materials, Metal Clay, and More! Katrina Donovan, Deborah Mitchell		{Setup - Tear Down}	The Opportunities You Take! Ann Anderson, Dearn Kertzman	The 2023 Conference Committee would like to offer a Special Thanks to . . . All the conference participants who make all of our efforts worthwhile and without whom there would be no conference. All speakers for their dedication to the future of mathematics, science & STEM education. All exhibitors for their enthusiastic participation. The Huron Area Chamber of Commerce, The Huron Events Center & Crossroads Hotel for their help and generous hospitality.			
Salon 2	Share the Classroom Treasures { Free Supplies from other Classrooms/Labs } Help yourself as after 2:40, these Treasures turn to trash!!!										
Room	7:00	8:00-8:50	9:00-9:50	10:00-10:50	10:50	11:30-12:30	12:40-1:30	1:40-2:30	2:40-3:30	3:40-4:15	4:30-6:30



## Reflection

Reflect on your growth, learning and insight from four of the sessions that you logged. Use the prompts below to fully consider the content of these four sessions. Use the template below for recording your thoughts and ideas. You will need four copies of the template to complete digitally or by hand.

## Reflection Rubric

Reflections scoring criteria.

Participation in Session	New Understandings	Application to Practice
Offers thoughtful reflections on the sessions' content.	Displays a good grasp of the material presented.	Clearly articulates potential applications of session content to professional practice
Demonstrates active listening in a session.	Provides examples personal new learning, insight, or understanding.	May demonstrate understanding of how the session's content applies to the practice of others

## Grading

Assignment	points	total
Session participation logged	25 points a session	200points
Session reflections	50 points each reflection	200 points
		400 points total

Letter Grades:	
90 -100%	A
80 - 89%	B
70 - 79%	C
60 - 69%	D
< 69%	F

**Reflection template (you will need four)**

Name of Session
Main presenter(s)
Big Idea
Select one prompt for a personal reflection on the content of this session. <ul style="list-style-type: none"><li>• Describe a new idea and how this idea is making you think differently.</li><li>• As a result of attending this session what do you thinking about doing differently in your educational role?</li><li>• If this session didn't fit your personal learning needs, describe an audience that would benefit from this information. In other words, who might you share this session's content with and how might you share it?</li><li>• Describe the resources and tools presented in this session. How might you use these resources?</li><li>• Describe connections you made with other educators and how these connections might support you.</li></ul>
Reflection on the prompt marked above.