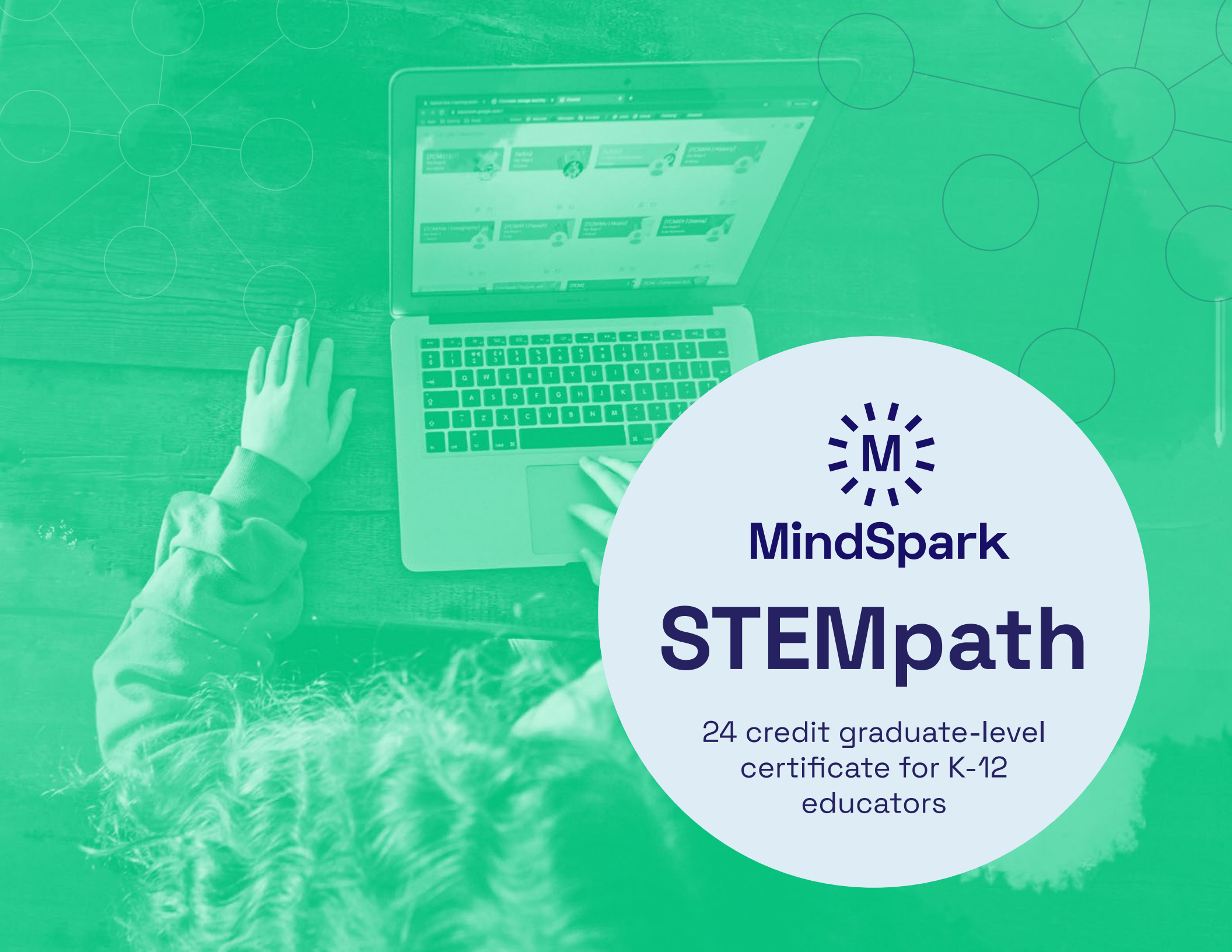

MindSpark

STEMpath

24 credit graduate-level certificate for K-12 educators

The Bureau of Labor Statistics estimates that the U.S. economy alone will see an additional 10.7 million STEM jobs by 2029. In the face of this daunting demand, there is a shortage of teachers qualified to teach STEM and Computer Science (CS). In fact, the US will need 30,000 CS secondary teachers by 2025. The current trajectory predicts a shortfall of 23,000 teachers just to satisfy the needs of secondary schools, not to mention the growing necessity to teach CS in earlier grades.

The missing link that impedes the long-term sustainability of education-to-employment pathways for students is qualified teachers. Existing educator preparation programs are scarce and lack industry, career, and workforce experiences. It is imperative, now more than ever, that educators receive extraordinary professional learning experiences integrated with relevant work-based externships within industry.

How will schools and districts prepare students for the future workforce without confident and capable teachers?

In 2015, Kellie Lauth, a seasoned STEM educator and administrator, united with Melissa Risteff, an accomplished technology executive and edtech founder. With a collective passion for equitably broadening participation in STEM, they formed a meaningful education + industry partnership. In 2018, STEMpath was conceived. This current call for open enrollment marks our 4th cohort to kick off in January of 2025.

We appreciate that applying for STEMpath is a significant life decision. We created this Viewbook to help you make an informed choice. In order to know exactly what to expect during your time in the program, we have included critical information such as a full program schedule and course overviews, details on the application process, and what kind of time commitment is required to complete the coursework. Finally, you'll hear from the STEMpath community whose insights and experiences show the power of being part of the MindSpark family. We invite you to join STEMpath 2025!

Sincerely,

Your MindSpark Learning Team


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STEMPATH COURSE WORK PLAN

MindSpark Learning (MSL) & Metropolitan State University Denver (MSUD) Requirements	Semester to be Completed	Semester Credit Hours
5502 Information Science (MSL) 5501 Equity Centered Design Thinking (MSL) 5500 Career Literacy (MSL)	Spring 2025	3 3 3
First Semester Subtotal		9
CYBM 5507 Externship PII (MSL/MSUD) CYBM 5506 Equity Centered Externship (MSL/MSUD)	Summer 2025	3 3
Second Semester Subtotal		6
CYBM 5503 Cybersecurity (MSUD) CYBM 5505 Information Technology (MSUD) CYBM 5600 Cyber Applications (MSUD)	Fall 2025	3 3 3
Third Semester Subtotal		9
TOTAL CREDITS		**24**

COURSE OVERVIEW - FIRST SEMESTER

Information Science

The activities and experiences will focus on communication, collaboration, productivity, and innovation. The course covers practical concepts and skills required to succeed in a technology-enabled information economy including:

- Analytical methods & data cleansing
- Information visualization
- AI, machine learning & its impact

> "I am now passionate about teaching data to teachers and students, and able to tell a story with data to move the needle in education. I've learned many new ways to create beautiful data visualizations and practiced weaving them into empowering data stories!

Equity Centered Design Thinking

Learn how to use strategic thinking to implement a culture of equity and innovation in the classroom. Course activities and experiences will include field work with authentic users in the community focusing on:

- Creative problem-solving simulations
- Hands-on prototyping with a variety of tools
- Interacting in a robust feedback-reflection-iteration loop

> "It has been an eye opener to learn more about equity centered design thinking and how I can implement it in my courses going forward. I have also become more aware of biases and how to create equitable learning opportunities."

Career Literacy

Learn why career literacy and workforce readiness are critical to Computer Science, Information Technology, and Cybersecurity. In order to attain the occupational and employability skills, participants will complete experiential learning tasks. This course covers:

- Workforce trends and labor market information
- Student choice, equity, and bias around career pathways
- Work-based learning continuum

> "I have thought more about careers in STEM and how I can bridge those gaps of knowledge that my students might have about those careers. I am also aware of more STEM roles that I can now share with students, who might not have thought of them before."

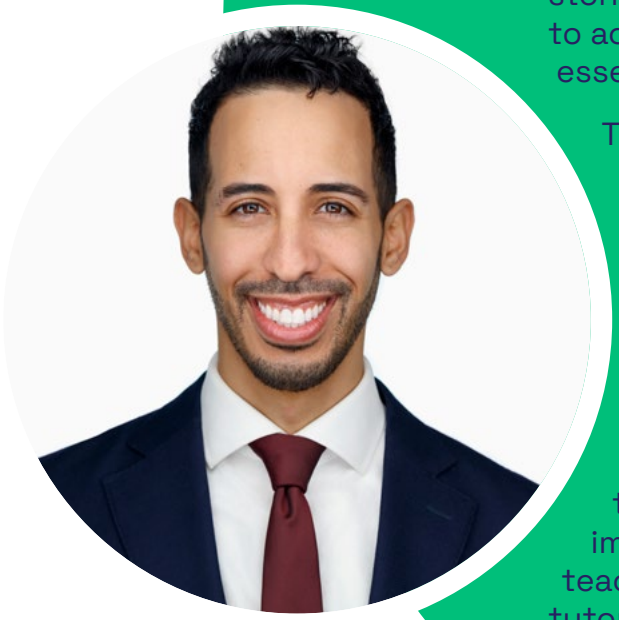
Couragion Microcredentials

Throughout the first semester you will earn technology workplace microcredentials through Couragion. The work-based learning experiences provide real world context and mastery of career-specific skills via applied exercises which will introduce key skills, concepts, and terminology and provide a foundation for the industry externship.

INSTRUCTOR VIEWPOINT

Sammy Anzer

STEMpath Information Science Instructor



When I started my course in Information Science for our most recent cohort, our educators didn't fully understand what role data and statistics play in the classroom of an average school teacher. Then, I showed them an article in the NY times about how students' school districts and their race affects their future success. Very quickly, our teachers came to see: information, when displayed cleanly and accurately, can tell a story, information and data stories can move people to understand the world differently and move them to action, the process of being information literate and interpreting data is essential for teachers because many of our student's future jobs will require it.

The expertise that we build in educators enables them to upskill their own students. These skills are career pathways to high-paying jobs. These high-paying jobs create access to healthcare and opportunities that will smash the cycle of poverty. And the mission of creating equity through education creates a stronger, smart, healthier, and wealthier society.

MindSpark does not teach a curriculum that merely checks off the content mastery requirement boxes. Content alone is not what moves people. That's not what makes an 8th grade girl see herself, perhaps for the first time, in a space and with a future that she didn't necessarily imagine possible before. STEMpath aims to impart these truths and remind teachers that they are not merely repositories of information or content tutors. They are agents and experts of world change. Together, we are changing the world through education.

COURSE OVERVIEW - SECOND SEMESTER

Externship

You will be paired with an industry partner for a 6-week summer externship. Externships include individual project assignments and collaborative group work. This invaluable hands-on experience contributes to developing applied CS skills.

Externship Integration Course

This course provides an opportunity to reflect on what you learned during your externship and contextualize those insights into the development of teaching and learning practices for the classroom.

> "I was eager to gain industry experience through the summer externship. Specifically, I wanted to learn more technical skills for my computer science and engineering classes, but also see agile teams in action. It was important to me to improve how I design experiences for student teams that are realistic to the modern workplace."

COURSE OVERVIEW - THIRD SEMESTER

Algorithms and Programming (CYBM 5600 Cyber Applications)

This course will cover fundamental programming techniques and algorithms to solve computational problems. You will learn how to:

- Create prototypes
- Use flowcharts and pseudocode
- Design, develop, and document programs

IT Systems (CYBM 5505 Information Technology)

This course will cover the basics of information technology systems. You will learn about:

- Foundations for finding where errors typically occur in IT systems
- Interaction of hardware and software
- Networking technology, with an emphasis on the layered approach and its related protocols

Cybersecurity (CYBM 5503 Cybersecurity)

This course provides a broad overview of cybersecurity, and the terminology, approaches, and underlying technologies used. You will gain an understanding of:

- Common cyber-attacks, risks, and techniques for detecting, and defending against threats
- Social engineering, cryptography, and network and application security
- Current cyber regulations and the public and private sectors role in securing cyberspace
- Legal, policy and ethical issues such as privacy, surveillance, and civil liberties
- Emerging compliance frameworks

Couragion Classroom Integration

As a STEMpath participant, you will receive an annual subscription of the Couragion platform to be used during the 3rd semester of the program. This is an incredibly useful tool for applying career literacy directly in the classroom.

SCHEDULE

In-Person Orientation Weekend:

January 24-25, 2025
MindSpark Learning, 455 S Pierce St, Lakewood, CO

While STEMpath is a virtual program, we understand the importance of building relationships and in-person connections. The STEMpath kick-off weekend gives you a forum to build those connections and get acquainted with your cohort. The weekend will focus on key orientation details in order to set expectations and ensure that everyone is set up for success. There will be time to get to know your MindSpark Instructors and to hear from past STEMpath alumni. This kickoff weekend is designed to be fun - with team-building exercises, social gatherings, and a few surprises.

First Day of Spring Semester: January 28, 2025

Spring Break: March 17 - 21, 2025

First Day of Second Semester:
TBD Based on Individual Summer Break Schedule.
Required 6 weeks in June and July

ALUMNI VIEWPOINT

Anna Kwan

STEMpath Alumnus 2019, STEM Teacher, Aurora Public Schools

Anna Kwan was a classroom teacher for 8 years before she left education all together to pursue different career options. One day back in 2018, she stumbled upon the launch of STEMpath and recalls that she “got goosebumps because it was calling me back [to the classroom]”.

Anna developed strong relationships within the cohort and was energized by the skills she built and the encouragement she received. She passionately reflects on the feelings of excitement when it was time to go to class as the cohort couldn’t wait to provide updates to each other, share ideas, and actively learn from and grow with one another.

STEMpath activated Anna’s leadership abilities resulting in the increased confidence to ask for more responsibility in her role and to build a STEM innovation classroom which had never existed at her school up to that point. Anna’s path was to positively disrupt her own learning journey in order to change her student’s lives in return. Anna states that STEMpath: “was among the best professional development I have ever had as a teacher.”

SCHEDULE - FIRST SEMESTER

LEGEND
IS - Information Science
DT - Equity-Centered Design Thinking
CL - Career Literacy

Week #	Tuesday 5:00-8:00pm (MT)	Thursday 5:00-8:00pm (MT)	Saturday 9:00am-3:00pm (MT)
1	IS 3hrs - 1/28/25	IS 3hrs - 1/30/25	CL 5hrs - 2/1/25
2	IS 3hrs - 2/4/25	IS 3hrs - 2/6/25	
3	IS 3hrs - 2/11/25	IS 3hrs - 2/13/25	IS 5hrs - 2/15/25
4	IS 3hrs - 2/18/25	IS 3hrs - 2/20/25	
5	IS 3hrs - 2/25/25	IS 3hrs - 2/27/25	IS 5hrs - 3/1/25
6	DT 3hrs - 3/4/25	DT 3hrs - 3/6/25	DT 5hrs - 3/8/25
7	DT 3hrs - 3/11/25	DT 3hrs - 3/13/25	
8	DT 3hrs - 3/18/25	DT 3hrs - 3/20/25	DT 5hrs - 3/22/25
9	MSU Spring Break TBD 3/23/25 - 3/29/25		
10	DT 3hrs - 4/1/25	DT 3hrs - 4/3/25	
11	DT 3hrs - 4/8/25	DT 3hrs - 4/10/25	DT 5hrs - 4/12/25
12	CL 3hrs - 4/15/25	CL 3hrs - 4/17/25	CL 5 hrs - 4/19/25
13	CL 3hrs - 4/22/25	CL 3hrs - 4/24/25	
14	CL 3hrs - 4/29/25	CL 3hrs - 5/1/25	CL 5 hrs - 5/3/25
15	CL 3hrs - 5/6/25	CL 3hrs - 5/8/25	
16	CL 3hrs - 5/13/25	CL 3hrs - 5/15/25	CL 5hrs - 5/17/25

SCHEDULE - SECOND SEMESTER

June - July 2025
6 Weeks - Start date will be determined based on the summer break schedules.

Externship:

- 3 Days per week (Tuesday-Thursday)
- 8 hours per day

Externship Integration Course:

- 1 Day per week (Monday)
- 9AM - 3PM

EXTERNSHIP FAQ'S

Why are STEMpath externships important?

The externship will provide you with the opportunity to apply what you learned during the first semester while working side-by-side with industry professionals. This is your opportunity to receive an unforgettable learning experience.

What would an extern do during their externship?

You will perform tasks useful to the company, while meaningfully building your understanding of technology workplaces. We use a team-based model for externships whereby 2-3 educators will collaborate to conduct research on behalf of a host company. The research will engage you in design thinking and agile methods. Insights inspire future design work, inform new products, evaluate existing solutions, and measure impact.

Is the externship in-person or remote?

Externship partners span from large global enterprises to small start-ups. All externship teams will be working remotely. You will collaborate with internal stakeholders virtually throughout the 6 week externship.

Is the externship paid?

The externship program is unpaid. The externship is part of the STEMPath program requirements and will be applied towards a Computer Science Graduate Certificate. The program is approved by the Higher Learning Commission and the externship is credit-bearing.

Will I get to select my externship?

The STEMpath leadership team will determine all the placements based on several factors – including but not limited to – available opportunities, Couragion microcredentials, and educator interests and skills.

SCHEDULE - THIRD SEMESTER

at Metropolitan State University of Denver (MSUD)

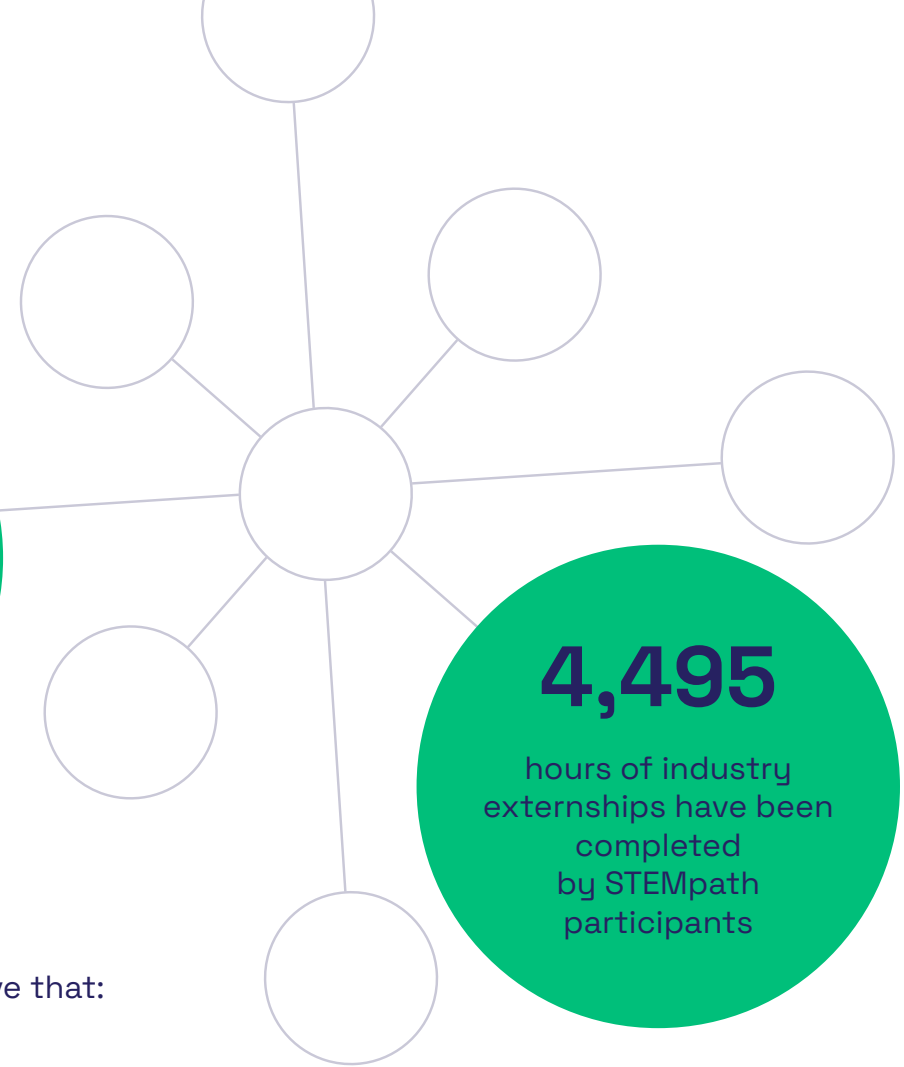
- The final three courses of your Graduate Certificate will be with MSUD.
- The courses are 100% virtual, run concurrently, and are asynchronous.
- Courses begin mid-August 2025 and finish mid-December 2025. Important dates and deadlines are in this Academic Calendar.
- The GRE test and graduate placement tests are not required for this certificate.
- Students in the Graduate STEMpath Certificate of Cybersecurity must complete the degree with a cumulative GPA of 3.0 or higher. No grade lower than a "C" will count toward the degree. Students receiving a "D" or below will be required to repeat the course. More information about the program's academic policies can be found on the Academic Catalog.

MSUD Resources

There are numerous Campus and Student Resources available to you through MSUD.

- The Auraria Library offers a variety of online options for books and course-related materials.
- The Writing Center can help with your written assignments virtually.
- The Tutoring Center is available to all students remotely.
- The Office of Student Engagement and Wellness can provide assistance during stressful times and be a useful support system for your physical and mental wellbeing.
- The Access Center can provide assistance to students who need additional support and/or accommodations in their academic program.

STEMPATH OUTCOMES



50%

of participants reported a salary increase as a result of their STEMpath Certificate

4,495

hours of industry externships have been completed by STEMpath participants

100%

of the educators who participated in STEMpath believe that:

- It adds measurable value to their profession
- They have the skills required to make a positive impact on their organization
- They leave with a plan to apply what they have learned into their teaching practice
- They have the tools to boost engagement amongst stakeholders in their organization
- They have the critical thinking skills necessary to promote an equitable environment
- They are more confident in engaging with leadership opportunities

STUDENT VIEWPOINT

Julia Moskowitz

STEMpath 2021, Science and Integrated Technology Senior Team Lead, Denver Public Schools

As a primary school teacher, Julia Moskowitz wasn't sure what she was getting into when she began the Information Science course. At the end of the course, she shared, "I now have the skills to use data to tell a story and make an impact in my classroom and district."

She wasn't exaggerating. After one of her administrators attended her STEMpath Capstone presentation, Julia's leadership team asked her to do a district-wide presentation on the data she collected and the insights she developed. Julia's research showed that maker spaces increase student engagement and prepare her students for the future workforce.

With the research in hand, Julia then funded her vision with a successful Donors Choose campaign. Her project will provide the equipment and resources that teachers and students will use for equity-centered design thinking and project-based learning tasks. Per Julia, "Our mobile makerspace will allow all 300 students to use their maker mindsets and have STEM-integrated learning experiences. Our future change makers are representative of diverse cultural and linguistic backgrounds, and the majority of students live in low-income households."

PROGRAM COSTS

Philanthropic contributions from community and industry partners make it possible to establish an educator scholarship fund each year. While the total cost of this program is $14,000 USD for the 24-credit certificate, your cost will be no more than $5,400 USD.

Payment options

It's possible that your school or district may pay for you to attend STEMpath and earn this certificate. Because cost should never stand in the way of developing your skills, we provide flexible payment options. Tuition and fees can either be paid in advance of the program start or over the course of each semester by enrolling in a payment plan.

Advance Payment

$5,400 - Payment Deadline January 15, 2025

Semester Payment Plan

Semester 1 - $2,025 - Payment Deadline January 15, 2025
Semester 2 - $1,350 - Payment Deadline June 2, 2025
Semester 3 - $2,025 - Payment Deadline August 1, 2025

DISTRICT VIEWPOINT

Jo Conlon

Digital Media Literacies, Thompson School District

Understanding the dire need for students to have exposure to STEM and CS at an early age, Jo Conlon and Thompson School District were seeking to embed a new computer science curriculum into their elementary schools. “Now our elementary CS curriculum provides a foundation that feeds into our secondary CTE courses. However, education is having a hard time recruiting and retaining classroom teachers, much less Computer Science teachers,” Conlon explained.

Conlon sent three educators to participate in the cohort; “STEMpath is the most important component! If our labs will be successful, it will be because we have Computer Science teachers in the labs facilitating learning. Without STEMpath, schools and districts would not be progressing as quickly.” With STEMpath, Thompson School District was able to create and sustain a district wide STEM innovation program.

APPLICATION

Applicants must complete the STEMpath application and be an in-service educator

Start Your Application

HAVE OTHER QUESTIONS?

Email us at STEMpath@mindspark.org


MindSpark
www.mindspark.org