



Center for Science and Technology in Education (CSTE)

CSTE OVERVIEW



Master's Programs

M.Ed. in Teacher Leadership: STEM

The M.Ed. in Teacher Leadership: Special Studies in Science, Technology, Engineering, and Mathematics (STEM) Education is an innovative program that allows in-service elementary and middle school teachers to explore relationships among science, engineering, and mathematics through a transdisciplinary approach to integrated STEM. Teachers in the program use cutting-edge technology tools to build a Professional Learning Network as they develop philosophies regarding issues of authenticity, equity, and achievement in STEM.

Each course in the program has been designed to reflect the MSDE STEM Standards of Practice as well as the core ideas and practices of the Next Generation Science Standards and the Common Core State Curriculum. Our program opens the space for teachers to explore relationships between science, engineering, and mathematics through the 'meta-discipline' of STEM in order to develop a holistic understanding of the world.



COLLEGE OF EDUCATION

BECOME A STEM LEADER & EARN YOUR M.ED.

Build your practice by being a leader in STEM education and bring 21st century skills into your school community.

**CONTACT US FOR
INFORMATION ABOUT
SCHOLARSHIPS &
FINANCIAL SUPPORT**

Courses feature integrated transdisciplinary approaches to authentic real-world connections, computational thinking, and equity in STEM education.

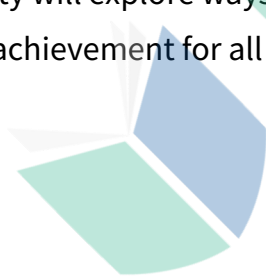


TRANSFORMING

EDUCATION FOR GOOD

Key Themes

- **Interdisciplinary STEM Education:** This program promotes a perspective of interdisciplinary STEM pedagogy, integrating the core ideas and practices of different disciplines in a harmonious and holistic manner that builds on rather than erases the epistemic differences between the disciplines. Learning is contextualized and situated in real-world problems and issues.
- **Teacher Leadership:** Teachers develop the knowledge and skills not only to provide high-quality STEM instruction for their students but also to lead professional development and otherwise influence STEM education beyond their own classrooms. Our most enthusiastic teacher leaders mobilize and energize stakeholders within and across their school communities to improve learning opportunities for all students.
- **Equity, Access, and Anti-bias Education:** Committed to ensuring that all students receive equitable, productive opportunities to learn within and across the STEM disciplines—most recently, with an increased focus on EL students, we foreground anti-bias education and integrate social justice standards and critical practices from the organization, Learning for Justice, into our programs.
- **Research & Inquiry:** Good teaching requires life-long learning skills and dispositions. Teachers work with UMD faculty to explore relevant scholarship to inform their work and engage in their own action research to improve their practice and communicate with broader audiences. In the next cohort, teachers and faculty will explore ways teachers leverage ideas and practices related to sustainability toward academic achievement for all students within STEM disciplines.



M.ED. TEACHER LEADERSHIP:

Special Studies in STEM Education



"I loved the program because it pushed me out of my comfort zone and helped me become a better educator! I left the program feeling prepared to lead my students and fellow teachers into more regular STEM activities/integration. I loved sharing what I learned with my colleagues. Even though I graduated from the program 4 years ago, the impacts of the program on my school have been long lasting."

AMY T.



Learning and Teaching in the Physical Sciences

This is a hands-on, interactive, and inquiry-focused course that takes an interdisciplinary approach to making sense of physics-related phenomena. It has been designed specifically for an audience of teachers with varying levels of experience in physics. Teachers have described it as challenging without being intimidating and being able to immediately apply the learning from this course to lessons for their students!

Learning and Teaching in the Biological Sciences

This integrated and project-based course focuses on developing conceptual knowledge of core ideas in evolution, ecology, and heredity. Students develop the ability and propensity to approach the learning of new topics in biological science through tangible sense-making and coherence-building of explanations for phenomena. They will engage in scientific argumentation, which includes engaging with other people's ideas, defending claims with evidence, and seeking coherence between different ideas and will consider issues of design in biology that are related to human needs and socio-scientific issues.

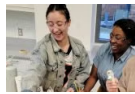
Problem-Solving and Innovative Thinking in the Mathematics Classroom

Teachers will delve into the intricate relationship between problem-solving and innovative thinking within the context of mathematics education. Through a blend of theoretical foundations and practical applications, participants will explore a variety of mathematical problems and innovative teaching methodologies aimed at developing students' abilities to think deeply and creatively in mathematical contexts.

Developing a Professional Teaching Portfolio for STEM

In this course, teachers will develop dynamic electronic portfolios that showcase their evolving professional philosophies for sustainability in STEM education, sample lessons, student work samples, and more. The following are electronic portfolios created by teacher participants:

- [Ms. Sella's Teaching Portfolio](#)
- [Ms. Wu: Elementary STEM](#)
- [Mr. Rivera: STEM](#)
- [Ms. Chervenak: STEAM](#)



Other Master's Programs

MCERT, Master of Education (M.Ed.) with Certification

Science Education, Master of Arts (M.A.)

The [Master's Certification Program \(MCERT\)](#) is a graduate-level teacher preparation program that leads to elementary, middle school, secondary or preK-12 teacher certification and a Master of Education (M.Ed.). Content area specializations include Art, Dance, Elementary Education, English, Mathematics, Middle School Math and Science, Physical Education, Secondary Sciences (Agriculture, Biology, Chemistry, Computer Science, Earth/Space Science, Physics), Social Studies, TESOL (Teaching English to Speakers of Other Languages), and World Languages (Chinese, French, German, Italian, Latin, Russian, Spanish).

The 13-month, 42-credit program is an intensive, full-time experience that integrates both theory and practice in a school-based program. Interns will be engaged in learning and teaching activities at a school site during the weekdays. In addition, interns will attend pedagogy and education courses on two nights a week as well

as some Saturdays. The demands of this compact, intensive experience preclude MCERT interns from employment or graduate assistantships during the internship year. The MCERT program is offered only on an intensive full-time basis. We offer some of our courses in a hybrid format.

[CONTACT US](#)

[FACULTY & STAFF RESOURCES](#)

[MAKE A GIFT](#)

[SEARCH](#)

[SITEMAP](#)

[WEB ACCESSIBILITY](#)

[PRIVACY POLICY](#)

[COE RESEARCH OFFICE](#)

University of Maryland
College Park, MD 20742

Copyright © 2026 University of Maryland

