

Microcredentials

Clemson University's Teacher Learning Progression

- Integrating Science & Engineering Practices
- Creating Engaging Math Classrooms
- Computer Science Fundamentals
- Integrating STEM Across the Curriculum
- Social and Emotional Learning
- Online Teaching
- STEAM Leadership

Integrating Science & Engineering Practices

Understanding and Integrating Science and Engineering Practices

Audience: STEM Teachers

Examines the relationship between science and engineering at the curricular level as well as exploring authentic applications using science and engineering practices. Emphasis will be on planning for and implementing science and engineering practices and using scientific data to make informed engineering design decisions.

Integrating Project-Based Learning with Science and Engineering Practices

Audience: STEM Teachers

Focuses on the development and implementation of a project-based learning mini-unit. The units will shift the teacher into the role of a facilitator and provide students with the opportunity to collaboratively engage in complex problem-solving experiences using science and engineering practices.

Assessment of Science and Engineering Practices

Audience: STEM Teachers

Focuses on the assessment of science and engineering practices, specifically through the use of project-based learning. Emphasizes the creation of formative and summative assessments and the ways to use assessment data to make curricular decisions.



Creating Engaging Math Classrooms

Engaging Students in Mathematics through Career Snapshots

Audience: Middle School Mathematics Teachers

Teachers will use video snapshots to explore how mathematics is applied on-the-job. This course will provide an opportunity to investigate and create engaging classroom lessons to make math meaningful for students.

Engaging Students in Data Analysis, Statistics, and Probability

Audience: Middle School Mathematics Teachers

Explores opportunities to integrate Data Analysis, Statistics, and Probability instruction with authentic real-world contexts while promoting the Mathematical Process Standards. This course will provide an opportunity to investigate and create engaging classroom activities and apply authentic assessment strategies.

MC Title: Using Formative Assessment Strategies to Engage Students in Mathematics

Audience: Middle School Mathematics Teachers

Explores opportunities to utilize engaging activities to assess student understanding of mathematics. This course will provide an opportunity to investigate, evaluate and create formative assessment classroom activities, with or without the use of technology.

Computer Science Fundamentals

Introduction to Coding with Block-Based Programming

Audience: Teachers

Focuses on mechanisms and motivations behind block-based programming. Includes a project-based learning approach and opportunities to explore modern block-based programming tools such as Scratch and block-based robotics programming.

Will be taught by Olivia M Nche

Advanced Coding with Text-Based Programming

Audience: Teachers

Explores the fundamentals of text-based programming including debugging, functions, and applications. Includes transitions from block-based to text-based programming and a project-based learning approach and opportunities to explore modern text-based programming languages such as Python.

Will be taught by Olivia M Nche

Integrating Computational Thinking into Math and Science

Audience: Teachers

Focuses on motivations, definitions, applications of computational thinking practices in math and science subjects. Includes a project-based learning approach and opportunities to explore tools used in learning STEM-based computation such as PhET simulations and NetLogo.

Integrating STEM Across the Curriculum

All Integrating STEM Across the Curriculum courses are designed for non-STEM teachers

STEM Foundations

Audience: Teachers & Instructional Coaches

Focuses on developing a foundational understanding of STEM. Provides opportunities to explore and observe STEM-based instructional approaches, including the ways in which teachers structure the classroom environment, scaffold problem-based tasks, and facilitate critical thinking. Teachers will apply their learning and collaboratively develop a STEM lesson for their content and classroom.

STEM Instructional Design

Audience: Teachers & Instructional Coaches

Provides opportunities to compare and contrast three approaches to developing integrated STEM instruction and consider the role families play in supporting STEM programs. Teachers apply their learning by using backward design to collaboratively create a STEM lesson sequence that integrates authentic learning experiences based on their content area.

STEM Assessment

Audience: Teachers & Instructional Coaches

Focuses on developing assessments for STEM activities differentiated by content area using multiple forms of data collected through the iterative learning process. Assessment types could include authentic, embedded, incorporate regular feedback, and drive adjustments to teaching. Teachers will collaboratively plan instruction and develop assessments aligned with STEM best practices in their content area.

Social and Emotional Learning

Understanding Social Emotional Learning (SEL) and the Impact of Adverse Childhood Experiences (ACES)

Audience: Teachers, Administrators, Coaches, Support Staff

Offers an overview of what SEL is and explores the impacts of ACES such as traumatic events in the home and community, including violence, economic insecurity, and substance use in the family. Emphasizes impacts on brain development, behavior, and learning for children and adolescents.

Classroom Strategies to Promote Social Emotional Learning (SEL)

Audience: Teachers, Administrators, Coaches, Support Staff

Addresses the importance of student social-emotional learning skills and their relationship to classroom success. Emphasizes strategies that are easy for teachers to implement at a variety of grade levels including mindfulness, movement, communication, and environmental adaptations.

Addressing Social Emotional Learning (SEL) through the Lens of Equity, Diversity, and Inclusion

Audience: Teachers, Administrators, Coaches, Support Staff

Examines the ways in which SEL both promotes and is dependent upon an equitable learning environment, where all students and school staff feel respected, valued, and affirmed in their unique interests, strengths, and social and cultural identities. Emphasizes understanding biases, the impact of racism, and in order to cultivate adult and student practices that close opportunity gaps and build inclusive school communities.

Online Teaching

Introduction to Online Teaching

Audience: Teachers & Coaches

Online teaching is not unlike juggling, requiring instructors to deftly balance students, instruction, grading, and technology simultaneously. This microcredential provides evidence-based strategies to help online instructors find and keep that balance, whether they're teaching synchronously or asynchronously.

Differentiated Online Teaching Practices

Audience: Teachers & Coaches

Every learner has a unique skill set, knowledge base, and background. In this microcredential, we will examine strategies that will help you identify learner attributes and leverage differentiated online teaching practices to meet the needs of all learners in virtual learning environments.

Engaging Students in Online Learning Spaces

Audience: Teachers & Coaches

Fostering a virtual learning space that effectively engages learners is a critical component of successful teaching and learning. In this course, we will explore evidence-based pedagogical practices designed to create engaging learning spaces in virtual environments.

STEAM Leadership

Fostering Transdisciplinary Teaching

Audience: Principals, Instructional Coaches, Teacher Leaders

Focuses on conceptualizing and supporting STEAM instruction, including how school environments, tasks and learning are structured to support STEAM teachers across disciplines. Emphasizes understanding and supporting instructional approaches that promote equitable participation by solving authentic, community-based, social and humanitarian problems.

Developing a STEAM Community

Audience: Principals, Instructional Coaches, Teacher Leaders

Focuses on supporting different levels of STEAM integration depending on district-context. Identifies local and school community expertise to build-on community strengths. Emphasizes understanding common challenges and ways to alleviate those challenges to support STEAM learning environments.

Supporting Assessment in STEAM Classrooms

Audience: Principals, Instructional Coaches, Teacher Leaders

Emphasizes connecting assessments to real-world applications. Focuses on ways to align authentic assessments to state/district standards and benchmarks. Introduces a STEAM observational rubric to support teachers STEAM instruction.