

John C. Mascaro Faculty Lecturer in Sustainability

Project: *The Pitt-Johnstown STEM Endorsement for Current K-12 Teachers*

The University of Pittsburgh describes Sustainability as “balancing equity, environment, and economics so current and future generations can thrive,” and seeks to foster connections that “solve complex challenges facing our planet.”

Our current K-12 students are our future leaders for solving challenges of Sustainability. How do we get them there?

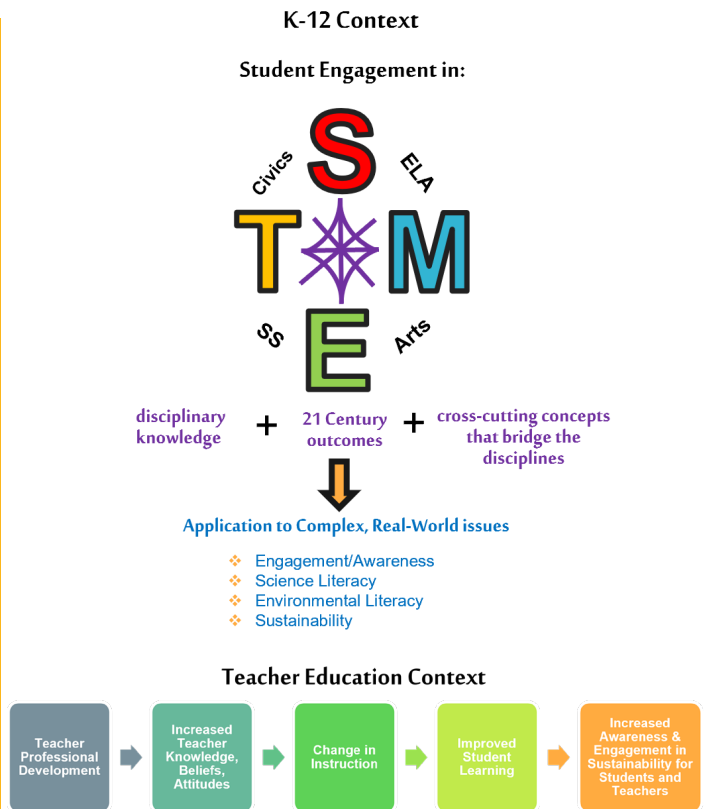
Teachers.

This project aims to establish a post-bacc program for practicing teachers that allows them to address issues in education related to learning, instruction, curriculum and assessment.

Specifically, related to issues of Sustainability education, teachers will address the need for:

- **Meaningful, active learning experiences in STEM** – those that tackle real engagement and awareness in Sustainability issues
- **Early engagement of all learners in STEM (equity)**
- **Scientific literacy, for both teachers and students (including dissemination and evaluation of information and evidence-driven discourse)**

Ultimately, sustained and reflective teacher professional development yields improved student awareness, engagement and achievement.



Dr. Sarah Chesney

*Asst. Professor of Science/STEM Education
University of Pittsburgh at Johnstown*

More specifically this program aims to create a pathway for current teachers to:

- **Shift their teaching** to more authentically and meaningfully engage students in scientific literacy and to discover how the STEM disciplines work together to solve global sustainability problems.
- **Discover the challenges** that STEM professionals have in disseminating new findings to citizens, the vastness of information, the propensity of information to become distorted, misunderstood, or misused depending on political/personal biases, and **impart this learning and practice to their current students.**
- **Examine their roles** as teachers to model scientific literacy in their classrooms, and **engage students** in evaluating information and using evidence to support their claims and drive scientific discourse.
- **Complete their STEM Endorsement Certificate**, as an advocate of learning, stewardship and sustainability, **with the goal of moving themselves and students beyond awareness to engagement via the projects they implement in their classrooms**

Teachers in this program will engage in accelerated post-bacc courses and seminars, real-time field experiences within their actual classrooms, self-identified pathways of professional development, and collaboration with other area teachers and university students.

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This program is an extension of Pitt-Johnstown's current undergraduate STEM Endorsement Certificate Program, first developed in 2019. Utilizing feedback from current STEM candidates and needs of area teachers, we determined a need for this program for practicing teachers.

The program aims to be piloted in the Summer of 2024 through Spring 2025.

What is STEM?

- ❖ “STEM” in K-12 classrooms is evolving to mean more than learning the disciplines [subjects/topics] within the acronym: STEM education provides opportunities for removing the traditional barriers between disciplines, where students transfer knowledge, develop and use 21st Century skills to solve complex, real-world problems.

What is a STEM Endorsement Certificate?

- ❖ Pitt-Johnstown is a PA Department of Education approved teacher education and certification program. An Endorsement Certificate recognizes that an educator has specialized in an emerging area, such as STEM Education, where teaching certifications do not yet exist. This can be completed in conjunction with undergraduate work, or in the context of this project, as a post-baccalaureate program.