Graduate Studies in STEM EDUCATION

Science | Technology | Engineering | Math

Become a leader in STEM education.
Take courses in Annville, in Harrisburg, and online.

Lebanon Valley College
INTEGRATIVE STEM EDUCATION CERTIFICATE | 12 CREDITS
The Integrative STEM Education Certification Program uses best practices and exemplary models of STEM pedagogy for students of varying abilities, developmental stages, and diverse backgrounds. After successful completion, you'll be eligible to add the STEM endorsement to your current Pennsylvania teaching certificate. Earned credits can be applied to the Master's program.

MASTER OF SCIENCE IN STEM EDUCATION (MSSE) | 33 CREDITS
Our interdisciplinary Master of Science in STEM Education (MSSE) program enables educators to integrate science, technology, engineering, and math into the classroom creating a learning environment where STEM literacy is evident. With these competencies, our graduates enhance the STEM education needs of students, schools, districts—and the global community.

INTEGRATIVE STEM EDUCATION CERTIFICATE COURSES AND OPENING SEQUENCE FOR MSSE STUDENTS

INTRODUCTION TO STEM EDUCATION (MSE 880) | 3 CREDITS
Designed for educators, this course includes an introduction to the curricular nature and signature pedagogies unique to each discipline; examination of state and national standards; an investigation of related political, global, and economic trends and issues; and a review of STEM research.

STEM EDUCATION SYSTEMIC REFORM (MSE 881) | 3 CREDITS
This course is designed for educators as an investigation of STEM initiatives and programs at all levels—local, state, national, and global. This includes the study of individuals and organizations that have played a role in the development of STEM education, exploration of various types of STEM programs in K-12 schools, analysis of barriers in STEM for some students, and how to reform education to increase/improve STEM through systemic processes. Furthermore, grant writing will be considered as a critical component of STEM reform. Individually and collaboratively, students will become equipped to build STEM programs and/or take an existing one to the next level through a blend of readings, discourse, personal reflections, and hands-on experiences.

STEM INTEGRATIVE CURRICULUM DESIGN (MSE 882) | 3 CREDITS
This course is designed for educators as a rich and deep inquiry into STEM integrative curriculum design, including the written, taught, and assessed curriculum. This includes a thorough examination and application of state and national science, technology, engineering, and math standards; an exploration of published STEM curricular and assessment programs; an introduction to auditing written curriculum; and an investigation of signature STEM pedagogies. Furthermore, methods and levels of curriculum integration and formats/templates for curriculum writing will be researched and comparatively analyzed in order to determine appropriate uses for STEM integration. Individually and collaboratively, students will engage in integrative STEM curriculum and assessment development through a blend of readings, discourse, personal reflections, and hands-on experiences.

INTEGRATIVE STEM EDUCATION PRACTICUM (MSE 883) | 3 CREDITS
This course is designed for educators to apply and extend integrative STEM knowledge, understanding, and skills acquired through coursework to meaningful field experiences. During the Integrative STEM Education Practicum, students will develop a digital portfolio of artifacts as evidence in meeting the program competencies and as demonstration of reflective practice.

ADDITIONAL COURSES TO BE COMPLETED FOR MASTER’S PROGRAM

829 | Research Methods and Statistics (Required for MSSE)
CHOOSE THREE COURSES FROM PRINCIPLES COURSES
801 | Principles of Biology & Life Sciences
802 | Principles of Chemistry
803 | Principles of Physics & Physical Science
805 | Principles of Earth & Space Science
806 | Principles of Mathematics for STEM Classrooms
807 | Principles of Technology & Engineering for STEM Classrooms
CHOOSE THREE ADDITIONAL ELECTIVE COURSES
813 | Literacy in the Science Classroom
820 | Speciality Topics
821 | Exploration of STEM Careers
822 | Forensic Science
823 | Waterways
824 | Emerging Internet Technology
826 | Watersheds and Wetlands
827 | Applying Wildlife and Natural Resources

9 CREDITS + 3 FREE CREDITS!
The practicum is free after successful completion of the first three STEM endorsement courses.

WHY LVC?

MSE alumni get a 25% discount
Personal academic advising
Expert faculty
8-week and accelerated summer courses
Online offerings and two physical locations for courses
Flexible scheduling options, including hybrid and online courses

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