



SHIPPENSBURG
UNIVERSITY

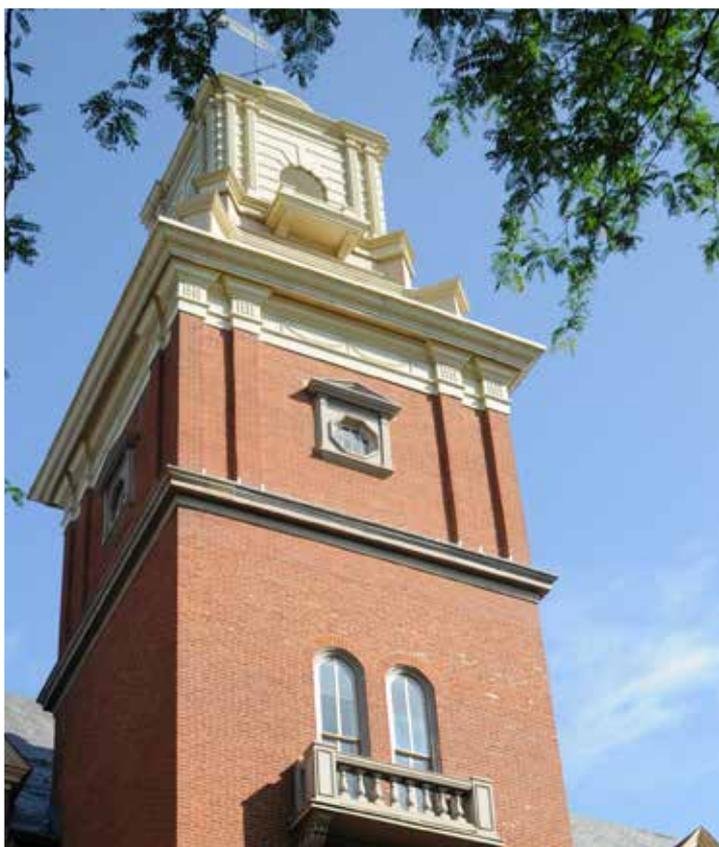
School of Graduate Studies



MASTER OF ARTS IN TEACHING
Science Education
WITH TEACHER CERTIFICATION

Become a
middle or high
school science
teacher!

**SHIPEDU/
GRADUATE**



PROGRAM HIGHLIGHTS

The Master of Arts in Teaching (MAT) in Science Education is an 18-month program leading to both a master's degree as well as teacher certification via the Pennsylvania Department of Education (PDE). It is designed for those who hold a degree in a scientific discipline who wish to teach middle or high school level science.

Features

- ▶ MASTER'S DEGREE PLUS PA TEACHER CERTIFICATION
- ▶ ONLINE MODULES
- ▶ COMPLETE IN 18 MONTHS
- ▶ MEET ONE SATURDAY PER MONTH IN HARRISBURG OR SHIPPENSBURG



PENNSYLVANIA
DEPARTMENT OF
EDUCATION (PDE)
APPROVED

Program Description

The MAT in Science Education is designed for professionals and recent college graduates who already hold a degree in a scientific discipline and who wish to teach science in either a middle school or high school. Completion of the program will result in both a master's degree and teacher certification through the Pennsylvania Department of Education.

Students will complete a sequence of six courses to teach research-based principles of safe and effective science instruction followed by a 12-week student teaching practicum. Students will also complete and present a research project and comprehensive teaching portfolio.

**Apply online at
ship.edu/SciEd**



Program Delivery

The 30-credit MAT can be completed in 18 months. It is designed to meet the needs of working professionals by delivering courses through a combination of online interactions, videoconferencing, and face-to-face meetings. Cohorts of 10-15 students will move together through a sequence of six modules. Each module will be three credit hours. Face-to-face meetings will be just one Saturday per month and you can choose between coming to campus in Shippensburg or the Dixon University Center in Harrisburg.

At the beginning of the program, students will be assigned an experienced science teacher in a local school as a mentor and approximately 25 hours of observation and co-teaching per module will be required.

During the 12-week student teaching practicum (12 crs.), students will implement principles from the modules and assume responsibilities for planning, instruction, and assessment. Two capstone projects, a professional portfolio and the results of a research project, will be presented at the end of the program.

COURSE SEQUENCE

The sequence for completing the MAT (assuming an early August start*) is as follows:

- ▶ Two modules during Fall semester (6 crs.)
- ▶ One module during the Winter term (3 crs.)
- ▶ Two modules during Spring semester (6 crs.)
- ▶ One module during the Summer (3 crs.)
- ▶ Student teaching during the Fall semester of second academic year (12 crs.)
- ▶ Presentation of professional portfolio and research project during December of Fall semester of second academic year
- ▶ Assistance with job placement during the Spring semester of the second academic year

**Modules and timelines will shift depending on start of sequence.*



MAT ADMISSION REQUIREMENTS

Applicants must:

- ▶ Have earned a bachelor's degree in a scientific discipline from a regionally accredited institution.
- ▶ Have official undergraduate and graduate (if applicable) transcripts sent to Shippensburg University.
- ▶ Submit a completed application including a statement of intent summarizing their motivations and goals for entering the teaching profession.
- ▶ Two letters of recommendation.
- ▶ Achieve passing scores on two teacher certification exams that are required by the Commonwealth of Pennsylvania: Pre-Service Academic Performance Assessment (PAPA) and Praxis II Subject Assessment.*

** More information can be found at the Educational Testing Services website (www.ets.org). Applicants may be conditionally admitted if PRAXIS scores are pending.*

The MAT is designed for students who already have content expertise in a scientific discipline that is consistent with one or more of the secondary (grades 7-12) licensure areas in the Commonwealth of Pennsylvania: Biology, Chemistry, Physics, Earth and Space Science, Environmental Science, and General Science. Applicants may also pursue Middle Level (grades 4-8) certification.

The MAT directors will review each applicant's transcripts, statement of intent, recommendations, and, if available, examination scores. Applicants are encouraged to register and prepare for the PAPA and Praxis examinations as soon as possible and to contact the MAT directors with any questions or concerns. Preparation materials are available on the ETS website and via the program directors. ***Passing scores on both exams are required for teacher certification.***

FACULTY

Joseph W. Shane, Ph.D., Curriculum and Instruction (Science Education). Former high school chemistry teacher who currently teaches university-level chemistry and science-specific education courses for pre-service teachers.

Christine Anne Royce, Ed.D., Curriculum, Instruction, and Technology Education (Science Education). Currently serves as the chairperson of the Department of Teacher Education who has an extensive background in middle and high school science instruction and administration.

David F. Bateman, Ph.D., Special Education (Law and Policy). Twenty years experience with teaching special education courses, working directly with schools and teachers, policymakers.

PROGRAM STAFF

Carolyn M. Callaghan, Associate Dean, PCDE, 717-477-1502, pcde@ship.edu

Joe Shane, Associate Professor, Chemistry, 717-477-1572, jwshan@ship.edu

COURSE DESCRIPTIONS

SCED510 Foundations of Science Education in the United States (3 crs.)

Includes the historical and philosophical foundations of secondary education in the United States with particular emphasis on science education (i.e. the nature of science). Current issues such as federal and state educational policies and curriculum standards, standardized testing and accountability, and professional expectations for teachers will also be discussed.

SCED520 Research and Contemporary Issues in Science Education (3 crs.)

Surveys various research approaches in science education including quantitative, qualitative, and mixed methods. Emphasis placed on research characterizing contemporary issues such as inquiry-based instruction, effects of curriculum standards and standardized testing, and nature of science instruction. Action research (for the purpose of improving one's own practice) included and each student will design a project to be completed and presented as part of the capstone review (SCED590).

SCED530 Instructional Strategies and Technology in Science Education (3 crs.)

Assists the student with understanding the variety of strategies and philosophies behind those strategies for presenting instruction. Specific instructional models related to science education (learning cycle, 5E, and inquiry based instruction) will be utilized. Students develop their own instructional philosophy in concert with the national efforts in the science education field through readings, discussions, classroom observations, plus simulated and real teaching activities. Students will be prepared to design coherent instruction through curriculum design, unit planning and individual daily lessons. Also includes understanding how the instruction/assessment/evaluation process occurs and results in a student grade.

SCED540 Assessment in Science Education (3 crs.)

Includes all facets of the assessment process within the science classroom. Standardized achievement, diagnostic and aptitude tests, and teacher constructed tests will be examined. Emphasis placed on assessing students' conceptual understanding within the sciences through a variety of formative and summative assessment strategies. Also includes understanding how the instruction/assessment/evaluation process occurs and results in a student grade.

SCED550 Safety and Welfare in Science Education (3 crs.)

Surveys the primary safety concerns in science instruction with emphasis on chemical safety, safety equipment and procedures, and legal and ethical considerations for using live and preserved organisms in the classroom and field. Principles and legal requirements for classroom design and how classrooms and laboratories must be modified to accommodate students with learning and physical disabilities also included.

SCED560 Accommodating all Students in Science Teaching (3 crs.)

Examines the intellectual, physical, sensory and social-emotional differences of individuals as they pertain to learning processes. Also addresses the needs of English Language Learners (ELL) in the science classroom and how to best accommodate these students within a science classroom for opportunities to be engaged in all aspects of learning science.

SCED590 Student Teaching and Science Education Practicum (12 crs.)

MAT capstone course consists of two parts: 1) A twelve-week student teaching experience where students assume incrementally more responsibilities for lesson planning, assessment, classroom management, and other teacher-related duties under the guidance of an experienced mentor teacher and a university supervisor. Assignments include a comprehensive unit plan and an assessment portfolio. 2) A four-week period where students complete and present their professional portfolios and action research projects to a panel of secondary science teachers and university professors.

CANCELLATION POLICY

Shippensburg University reserves the right to cancel any courses due to insufficient enrollment or other unforeseen circumstances.

FOR MORE INFORMATION

Office of Professional,
Continuing, and Distance
Education Studies
(PCDE)

P: 717-477-1502

PDCE@ship.edu

SHIP.EDU/SCIED

School of Graduate Studies

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F: 717-477-4016

GradSchool@ship.edu

SHIP.EDU/GRADUATE

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Shippensburg University is an equal opportunity educational institution. Direct requests for disability accommodations and other inquiries to the Office of Disability Services, Horton Hall 120, Shippensburg University, 1871 Old Main Drive, Shippensburg, PA 17257-2299, 717-477-1329, ods@ship.edu.

Rev. 2/14



About the University

Shippensburg University has a long and rich tradition of meeting the educational, cultural, social, and economic needs of south-central Pennsylvania and beyond. With “Learn and Serve” as its guide, the university has provided graduate education for the Commonwealth since the 1950s. Today, 1,000 graduate students are enrolled in master’s degree, supervisory certification, and post-baccalaureate programs within three colleges: Arts and Sciences, Business, and Education and Human Services.

Located on 200 acres in Cumberland County, Shippensburg University offers excellent, widely respected, and accredited undergraduate and graduate programs taught by faculty dedicated to student success. More than 7,800 students attend Shippensburg including those enrolled in professional, continuing, and distance education programs.

Shippensburg’s programs are accredited by the Middle States Commission on Higher Education, AACSB International, ABET Inc., American Chemical Society, Council on Social Work Education, Council for the Accreditation of Counseling and Related Educational Programs, International Association of Counseling Services, Council for Exceptional Children and by the National Council for Accreditation of Teacher Education.



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A member of the Pennsylvania State System of Higher Education