



Program Guidebook

Master of Arts in Teaching, Science Education (Secondary)

The Master of Arts in Teaching (Secondary Science Education) is a competency-based degree program that prepares students at the graduate level to be licensed to teach secondary science and supports development of significant skills in science curriculum development, design, and evaluation. All work in this degree program is online with the exception of the Demonstration Teaching and in-classroom field experience components, which prepare teacher candidates for the classroom. Candidates develop and refine their teaching skills through a series of sequential experiences beginning with video-based observations of classroom instruction and participation in simulated classroom environments. Observations prepare candidates for an authentic, collaborative pre-clinical teaching experiences in K-12 settings. Clinical experiences culminate with supervised demonstration teaching in a real classroom. Students enter this program with a substantial background in science and proceed through coursework in Foundations of Teaching, Pedagogy, Science Education, Research, video-based classroom observation, Field Experiences, and Demonstration Teaching.

Understanding the Competency-Based Approach

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The Degree Plan

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How You Will Interact with Faculty

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Continuous Enrollment, On Time Progress, and Satisfactory Academic Progress

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Courses

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The graduate examines the impact of standards-based curriculum on students and teachers to determine how it supports a school's goals.

The graduate evaluates the application of educational best practices in diverse learning settings to inform teaching practice.

The graduate explores pathways and opportunities for professional development to grow as an educator.

Essential Practices for Supporting Diverse Learners

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate analyzes the application of policies, practices, and legal requirements to inform teaching practice.

The graduate creates inclusive learning environments featuring multitiered systems of supports to address the needs of all students, including exceptional learners and English learners.

The graduate creates learning experiences that accommodate the needs of students with exceptionalities, including gifted and talented students, in order to facilitate the success of all learners.

The graduate integrates equity pedagogy to address the needs of multicultural learners.

The graduate plans learning experiences that accommodate linguistic diversity to facilitate the success of all learners.

The graduate recommends strategies to engage with students, families, administrators, and other stakeholders in ways that are effective, legal, and ethical.

The graduate analyzes why specific multi-tiered intervention strategies support positive behavior and learning in the classroom.

Creating and Managing Engaging Learning Environments

The graduate analyzes the theoretical foundations and application of classroom management strategies, including behavior support and conflict management, to inform teaching practice.

The graduate recommends strategies that are motivating and encourage active engagement from all students.

The graduate applies evidence-based strategies within their content area to motivate and engage students.

Curriculum, Instruction, and Assessment

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate analyzes how research-based applications of technology facilitate student learning.

The graduate evaluates the application of technology in the classroom, including its impact on learning for all students and potential equity or access issues.

The graduate promotes a technology-enabled classroom culture that is equitable, ethical, and socially responsible.

The graduate applies curricular and instructional design principles to create effective digital learning environments.

The graduate recommends technology as an assessment tool to encompass multiple learner needs, provide in the moment feedback, and inform instruction.

The graduate fosters student self-directedness and independent learning through the use of technology.

The graduate applies evidence-based practices to articulate how technology supports teaching and learning in different learning environments.

Education

Educational Psychology and Human Development of Children and Adolescents

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate describes theories of development across the cognitive, linguistic, social, emotional, and physical areas to understand the needs of students at various developmental levels.

The graduate evaluates the influence of students' developmental characteristics on their learning and evaluates performance to inform instructional decisions.

The graduate recommends instructional strategies that will positively impact learning, based on principles of learning theories.

The graduate evaluates classroom practices to determine how theories of child and adolescent psychology, learning, and development are applied in the classroom environment.

The graduate analyzes learning theories to develop a personal educational philosophy.

Science Education

Science, Technology, and Society

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate analyzes the relationships among themes that appear across multiple scientific ideas.

The graduate analyzes the nature of science, including how science distinguishes itself from other ways of knowing.

The graduate analyzes the historical development of science, including how scientific knowledge evolves.

The graduate analyzes the various ways in which science, technology, and society are interrelated.

The graduate analyzes socially relevant scientific issues to make informed decisions based on data and context.

The graduate analyzes the principles, processes, and assumptions of investigations in science to engage students in the nature of inquiry.

The graduate uses technology tools and mathematics to improve investigations and the communication of results.

The graduate formulates testable hypotheses for scientific investigations.

The graduate conducts investigations in science to solve open-ended problems using appropriate scientific methods.

Science Methods

This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate analyzes connections among the three dimensions of science instruction—disciplinary core ideas, crosscutting concepts, and science and engineering practices—to prepare and plan for instruction.

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This course covers the following competencies:

Begin your course by discussing your course planning tool report with your instructor and creating your personalized course plan together.

The graduate explains how the Response to Intervention (RTI) approach identifies, monitors, and differentiates instruction to ensure that struggling readers obtain the appropriate support and interventions to improve academic progress.

use of academic language, metacognition, and communication in classroom contexts.

The graduate evaluates the theoretical and practical applications of various assessment practices as they relate to student learning and instructional design.

The graduate evaluates various applications of technological integration in support of learning for all students.

The graduate evaluates the theoretical, legal, ethical, and practical applications of teaching students with exceptional learning needs.

The graduate evaluates educational observations and experiences connected to professional practices to support the development of appropriate teaching dispositions and a personal teaching philosophy.

Student Teaching

Student Teaching I in Secondary Education

This course covers the following competencies:

The learner implements the full cycle of teaching while exhibiting professional dispositions and ethics.

The learner analyzes feedback and data from observations and evaluations to identify opportunities for improvement.

Student Teaching II in Secondary Education

This course covers the following competencies:

The learner engages in a continual improvement process in order to advance learner outcomes and personal professional practice.

The learner plans content-based instruction that supports student learning objectives.

The learner integrates instructional strategies to address the needs of all students and meet the learning goals and objectives.

The learner assesses student learning to monitor progress, engage learners in their own growth, and guide decision-making.

Demonstration Teaching

Teacher Performance Assessment in Science

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This course covers the following competencies: MATSES 202402

Accessibility and Accommodations