Teaching and Learning, MS

Science Education

The Master of Science in teaching and learning with a science education subprogram requires a minimum of 38 s.h. of graduate credit. Students must maintain a Graduate College program grade-point average of at least 3.00.

The program is designed for teachers and supervisors (K–college) and professionals in related fields, such as medical education, college teaching, museum program management, and outreach programs. It is intended to provide experience in understanding teaching and learning and the research processes required to advance the field. Students complete coursework in four areas: science education, education, research, and science. Their individual programs of study are approved by the science education faculty.

The MS in teaching and learning with a science education subprogram requires the following coursework.

Required Courses

Course #	Title	Hours
All of these:		
EDTL:6757	Learning in the Science Classroom (no substitute for this course)	3
EDTL:6759	Advanced Pedagogy (no substitute for this course)	3
EDTL:7755	Independent Study in Science Education Research (taken two times for 3 s.h. each)	6
Two science content courses chosen in consultation with advisor. Courses numbered 3000 and above in biology (BIOL), chemistry (CHEM), computer science (CS), earth, environment, and sustainability sciences (SEES), health, sport, and human physiology (HHP), and physics and astronomy (PHYS) may count.		6
A minimum of 12 s.h. chosen from these:		
EDTL:6758	Writing in the Science Classroom	3
CSED:7338	Essentials of Qualitative Inquiry	3
PSQF:4143	Introduction to Statistical Methods	3
PSQF:6200	Educational Psychology	3
PSQF:6220	Quantitative Educational Research Methodologies	3
PSQF:6275	Constructivism and Design of Instruction	3
One additional qualitative or quantitative research methods course chosen in consultation with advisor:		
EDTL:6761	STEM Research and Leadership Seminar	3
EDTL:6765	STEM Independent Research	3
EDTL:7040	Advanced Topics in Teaching and Learning	arr.
EDTL:7070	Qualitative Research Methods in Teaching and Learning	3
EDTL:7071	Critical Discourse Analysis in Educational Research	3
EDTL:7072	Advanced Methods of Literacy Research: Qualitative Data Analysis and Reporting	3
EDTL:7093	Research Project	arr.
EDTL:7756	Research Apprenticeship in Science Education	3
EDTL:7953	Seminar: Single Subject Design Research	3
EPLS:7373	Qualitative Research Design and Methods	3
PSQF:4143	Introduction to Statistical Methods (if not used to satisfy the 12 s.h. requirement)	3
PSQF:6243	Intermediate Statistical Methods	3
One of these:		
EDTL:7004	Schooling in the United States	3
EDTL:7033	Seminar on Teacher Education	3

Thesis

Students must complete a thesis, for which they earn 2–4 s.h. of credit.

Course #	Title	Hours
EDTL:6393	Master's Thesis	2-4

Final Examination

A final oral examination is administered on campus in which candidates defend their thesis. This examination includes a critical inquiry into the purposes, methods, and results of the thesis research investigation.

The final examination is conducted by a committee of no fewer than three members of the graduate faculty. In some cases, the committee must include a member from outside science education; consult the department.

Admission

Applicants must meet the admission requirements of the Graduate College. They should hold an undergraduate major in a science area (or combination of science areas), in science education, or in elementary education with a science emphasis. The department recommends that applicants have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.