

Teaching and Learning, MS

STEM Education

The Master of Science in teaching and learning with a STEM education subprogram requires 36 s.h. of graduate credit. Students must earn a UI cumulative grade-point average (GPA) of at least 2.75.

The program focuses on science, technology, engineering, and mathematics (STEM) education. The program includes coursework that may be used toward the K-12 STEM specialist endorsement. Degree requirements include online coursework to fit the schedule of a practicing teacher. The STEM education subprogram is not a licensure program.

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

Required Courses

STEM Pedagogy Courses

Course #	Title	Hours
All of these:		
EDTL:6563	STEM Through Mathematical Modeling	3
EDTL:6761	STEM Research and Leadership Seminar	3
EDTL:6762	STEM Experiential Learning	3
EDTL:6764	STEM Extracurricular Experience and Capstone	6

College of Education Course

Course #	Title	Hours
This course:		
EDTL:5095	Issues in U.S. Schools	3

Science/Mathematics Courses

Course #	Title	Hours
Two of these:		
EDTL:4565	Mathematics in Management and Social Sciences	3
EDTL:6766	Physical Science Topics in STEM Education	3
EDTL:6767	Systems Thinking in Biology and Integrated STEM Education	3

This course:		
EDTL:6765	STEM Independent Research (taken two times for 3 s.h. each)	6

Electives

Course #	Title	Hours
Additional approved elective coursework may need to be taken to complete the 36 s.h. required for the MS. At least 6 s.h. of elective coursework chosen from the following:		

EDTL:4066	Curriculum Concepts in Gifted Education	3
EDTL:4093	Teaching and Learning for a Global Perspective	3
EDTL:4199	Program Models in Gifted Education	3
EDTL:4392	Voice, Drama, and Debate in the Secondary Schools	3
EDTL:4393	Critical Media Studies and Production in Secondary Schools	3
EDTL:4467	Methods: ESL and Bilingual Education	4
EDTL:4498	Applied Linguistics and the Multilingual Classroom	4
EDTL:5081	Facilitating Student-Centered Discussions	3
EDTL:5085	Generation Innovation: Technology Integration in 21st-Century K-12 Schools	3
EDTL:5087	Anti-Oppressive Literature Instruction	3
EDTL:5090	Diversity and Identity in K-12 Schools	3
EDTL:5091	LGBTQ Topics in Education	3
EDTL:6483	Multilingual Education and Applied Linguistics	3
CSED:4137	Introduction to Educating Gifted Students	3
CSED:5300	Culturally Relevant Social and Emotional Learning	3
EPLS:5090	Instructional Coaching for Teaching Excellence	3
EPLS:6381	Analysis and Appraisal of Curriculum	3
PSQF:4121	Identification of Students for Gifted Programs	3
PSQF:4143	Introduction to Statistical Methods	3
PSQF:4740	Issues in K-12 Assessment	3
PSQF:4750	Learning Environments: Design, Context, and Activity	3
PSQF:4760	Participatory Learning and Media: Creating, Remixing, Making, and Education	3

Other courses in consultation with an advisor

K-12 STEM Specialist Endorsement

The University of Iowa does not offer a state-approved program for the K-12 STEM specialist endorsement. In addition to the master's degree, teachers must have met the requirements for a standard Iowa teaching license with endorsement in mathematics, science, engineering, industrial technology, or agriculture. They must demonstrate completion of 12 s.h. of science and 12 s.h. of mathematics content coursework (including computer science), which may include content coursework completed as part of this subprogram as well as other college-level courses. In addition, they must have completed 3 s.h. of engineering or technological design coursework not included in this subprogram; ENGR:1100

Introduction to Engineering Problem Solving and ENGR:1300 Introduction to Engineering Computing may be options for the requirement. Once the courses are completed, teachers may apply to the Board of Educational Examiners for transcript analysis and to add the endorsement. Students interested in pursuing the K-12 STEM specialist endorsement should notify their advisor upon admission to the program.

Admission

Applicants must meet the admission requirements of the Graduate College. These include:

- a bachelor's degree from a regionally accredited American college or university or an equivalent degree from another country as determined by the Office of Graduate Admissions with an undergraduate major in a given science or mathematics area (or combination of science areas), science education, math education, or in elementary education with a science or math emphasis; and
- a minimum GPA of 3.00 or the international equivalent as determined by the Office of Graduate Admissions.

Teaching licensure/certification is recommended for the MS and required if the candidate seeks the K-12 STEM specialist endorsement from the Board of Educational Examiners (BOEE).