

# STEM EDUCATION, MASTER OF SCIENCE IN EDUCATION

Offered by STEM Program (<http://catalog.unk.edu/graduate/departments/science-math-education-program/>)

## Program Information and Admission Requirements

This degree is administered by a committee of representatives from the departments of Biology, Chemistry, Mathematics and Statistics, Physics and Physical Science, and Teacher Education.

The Master of Science in Education Degree in STEM Education is offered for students in science and math teaching professions who wish to deepen their knowledge in science/math content as well as pedagogy, curriculum and research. Students must be certified to teach in an area of science or mathematics and meet the general requirements of the Office of Graduate Studies and Academic Outreach to be eligible for this program. A student interested in pursuing the M.S.Ed. Degree in STEM Education should contact the program coordinator for specific information concerning admission criteria and degree work. All courses for a program of study should be chosen in consultation with an academic advisor prior to enrollment by the student.

### Course Requirements

The program consists of 36 credit-hours of courses: 9 credit hours of teaching professional components (Educational Curriculum, Research, and Pedagogy courses), 24 credit hours of academic components (Integrated Option or Chemistry Option) and a 3 credit hour capstone course.

*Integrated Option* consists of a 12 credit-hour major emphasis (Biology, Chemistry, Math, or Physics/Physical Science), 6 credit-hours of content courses in math and/or science outside the major emphasis area, and 6 credit-hours of approved electives.

*Chemistry Option* is more focused on this subject requiring a minimum of 18 credit-hours of chemistry courses. The remaining 6 credit-hours may come from chemistry or the other science or math content courses.

Selection of the course options for a specific program should be made with the advisor before enrollment in the courses in order to develop the most effective and efficient program.

### Admission Information

To qualify for work on this degree, a student must have an endorsement in Biology, Chemistry, Mathematics, Natural Science (including those labeled "Science"), Physics, or Physical Science and meet the general requirements for entrance to graduate studies. Applicants with middle-grades endorsements may be admitted depending on their level of undergraduate science and math preparation. Admission to degree work is contingent upon evaluation of the following:

- Transcripts
- A letter of intent that addresses the following statements: "Describe your current teaching position and discuss how completing the UNK STEM M.S.Ed. program will help you meet your educational and professional goals. Summarize your undergraduate science, math, and education training and how it has prepared you for our program. If your current teaching certificate or license is from a state

other than Nebraska, include a brief explanation of the certification/licensing requirements in your state."

- Evidence of current or most recent teaching certification or license

This program is offered online only.

All students are required to complete an exit survey during the semester of graduation or program completion.

Code	Title	Credit Hours
<b>Professional Components</b>		
<i>Curriculum Course</i>		
TE 809P	Curriculum Implementation	3
<i>Research Course</i>		
TE 800	Education Research	3
<i>Pedagogy Course</i>		
TE 804	Curriculum Development in Multicultural Education	3
	or TE 886P Digital Technology for Educators	
<b>Capstone</b>		
STEM 888	STEM Education Capstone	3
<b>Degree Option Requirements</b>		
Select one of the following:		24
<i>Integrated Option</i>		
<i>Chemistry Option</i>		
Total Credit Hours		36

## Integrated Option

Code	Title	Credit Hours
<i>Major Emphasis</i>		
Select 12 credit hours in an area of endorsement (Biology, Chemistry, Mathematics, Physics/Physical Science)		12
<i>Supporting Courses</i>		
Select a minimum of 6 credit hours in Biology, Chemistry, Earth Science, Mathematics, Physics, or Physical Science outside the major emphasis. <sup>1</sup>		6
<i>Electives</i>		
Select 6 credit hours from the list of approved electives. Students should check with their advisor prior to enrollment if they want to take a course not on this list. <sup>2</sup>		6
Total Credit Hours		24

## Chemistry Option

Code	Title	Credit Hours
<i>Chemistry Core</i>		
CHEM 805	Chemical Management & Safety	1
Complete 4 out of the following 5 areas:		11-12
<i>Inorganic Chemistry Area - Take 3 hours from:</i>		
CHEM 820	Principles of Inorganic Chemistry	
CHEM 822	Transition Metal Chemistry	
CHEM 823	Fundamentals of Nanoscience	
<i>Organic Chemistry Area - Take 3 hours from the following:</i>		

CHEM 840 Advanced Principles of Organic Chemistry

Biochemistry Area - Take 3 hours from the following:

CHEM 855 Principles of Biochemistry

Analytical Chemistry Area - Take 3 hours from the following:

CHEM 864 Principles of Analytical Chemistry

CHEM 866 Analytical Instrumentation

Physical Chemistry Area - Take 2 hours from the following:

CHEM 883 Chemical Kinetics

*Chemistry Electives*

Take any additional 800-level CHEM courses <sup>3</sup> 5-6

*Supporting Courses*

Select 6 additional 800-level credit hours from the following departments: BIOL, CHEM, MATH, PHYS 6

Total Credit Hours 23-25

1

Courses must be taken in at least two disciplines. These courses will be selected to meet student needs as indicated by previous course work and teaching duties.

2

Electives can be additional major emphasis area courses to meet the new requirement from the Higher Learning Commission that dual-enrollment teachers must possess a master's degree with at least 18 credit hours in the subject area taught.

3

If 12 credit hours of Chemistry Core courses are completed, then 6 credit hours of Chemistry Electives are required. If 13 credit hours of Chemistry Core courses are completed, then 5 credit hours of Chemistry are required.