# STEM EDUCATION PROGRAM

**College of Arts and Sciences**

Janet Steele, Ph.D., STEM Program Director and Graduate Program Committee Chair - (308) 865-8325, steelej@unk.edu

## Master of Science in Education

- STEM Education (http://catalog.unk.edu/graduate/departments/science-math-education-program/science-math-education-mse/) - Master of Science in Education Degree

## Science and Math Education (STEM)

**STEM 888 – STEM Education Capstone 3 credit hours**
This course is designed to culminate the student's experience in the STEM Education Master of Science in Education program. Students will develop five new curricular units that could be implemented in a high school or middle school STEM course that the student teaches. The units must apply STEM content from five different degree program content courses. For students in the Integrated Option of the degree program, one of those courses must be a supporting course. For all students, one of the units must be a Case Study Student who needs additional academic support and guidance.
Prerequisite: Admission into STEM Education Program Recommended completion of TE 800 and at least 24 hrs of STEM Education degree program including 6 or more hours in Major Emphasis category.

## Biology (BIOL) - Major Emphasis Courses, Supporting Coursework, and Electives

| Code | Title | Credit Hours |
|---|---|---|
| Visit Biology Department Courses page (https://catalog.unk.edu/graduate/departments/biology/#coursestext) to view course offerings. Most courses can apply toward the program except for BIOL 820, BIOL 821 and BIOL 831A-F | | |

## Chemistry (CHEM)- Major Emphasis Courses, Supporting Coursework, and Electives

| Code | Title | Credit Hours |
|---|---|---|
| CHEM 805 | Chemical Management & Safety | 1 |
| CHEM 810 | Principles of Environmental Chemistry | 3 |
| CHEM 820 | Principles of Inorganic Chemistry | 3 |
| CHEM 822 | Transition Metal Chemistry | 2 |
| CHEM 823 | Fundamentals of Nanoscience | 1 |
| CHEM 840 | Advanced Principles of Organic Chemistry | 3 |
| CHEM 855 | Principles of Biochemistry | 3 |
| CHEM 864 | Principles of Analytical Chemistry | 2 |
| CHEM 866 | Analytical Instrumentation | 1 |
| CHEM 883 | Chemical Kinetics | 2 |
| CHEM 899 | Special Topics | 1-3 |

## Math (MATH) - Major Emphasis Courses, Supporting Coursework, Electives

| Code | Title | Credit Hours |
|---|---|---|
| MATH 862 | Mathematical Analysis for Teachers | 3 |
| MATH 864 | Geometry for Teachers | 3 |
| MATH 871 | Topics in Math | 3 |
| Topics in Math: Current Research in Math Education; Discrete Math for Teachers; Modern Algebra with Geometry; Modern Algebra with Geometry; Using Mathematics to Understand our World; Algebraic Geometry; Mathematical Knowledge for Teachers | | |

## Physics/Physical Science (PHYS) - Major Emphasis Courses, Supporting Coursework, Electives

| Code | Title | Credit Hours |
|---|---|---|
| PHYS 800 | Advanced Physical Science | 3 |
| PHYS 801 | Earth Science | 3 |
| PHYS 809 | Meteorology | 3 |
| PHYS 810 | Mathematical Techniques in the Physical Sciences | 4 |
| PHYS 811 | Astronomy | 3 |
| PHYS 813 | Intro to A&D Electronics | 4 |
| Professional Component: Curriculum Course | | |

## Teacher Education (TE)- Professional Components, and Electives

| Code | Title | Credit Hours |
|---|---|---|
| *CURRICULUM COURSE* | | |
| TE 809P | Curriculum Implementation | 3 |
| *RESEARCH COURSE* | | |
| TE 800 | Education Research | 3 |
| *PEDAGOGY COURSE* | | |
| TE 804 | Curriculum Development in Multicultural Education | 3 |
| OR | | |
| TE 886P | Digital Technology for Educators | 3 |
| *ELECTIVE HOURS ONLY* | | |
| TE 803 | Philosophy of Education | 3 |
| TE 805P | Overview of Assistive Technology | 3 |
| TE 808P | Human Relations | 1 |
| TE 810 | Instructional Design for Learning | 3 |
| TE 815P | The Effective Teacher: Enhancing Classroom Instruction | 3 |
| TE 845 | Contemporary Theory & Practice in Reading | 3 |
| TE 854 | Reading in the Content Areas | 3 |
| TE 868 | Copyright, Fair Use, and Ethics | 3 |

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| TE 877 | Developing Web-Based Educational Environments | 3 |