

STEM Education PhD (Interdisciplinary)

Program and Application Information

| | |
|--|--|
| Acting Program Director: | Dr. William Martin |
| Department Location: | FLC 210 |
| Department Phone: | (701) 231-7104 |
| Department Web Site: | www.ndsu.edu/csme/stem_education_graduate_programs/ |
| Degrees Offered: | Ph.D. (Dual Major in STEM Education and STEM discipline is an option) |
| English Proficiency Requirements: | TOEFL iBT 88, IELTS 6.5 |

Program Description

Applicants are invited for NDSU's interdisciplinary Ph.D. program in Science-Technology-Engineering-Mathematics (STEM) Education. The purpose of this interdisciplinary program is to prepare future college faculty whose research focus is on teaching and learning at the collegiate level and who can successfully teach at the undergraduate/graduate level in their selected STEM discipline.

Coursework will center on graduate-level courses in the discipline area, a common core of STEM Education courses, and elective courses focused on research training. The candidate's dissertation research will be supervised by an interdisciplinary team of faculty and will investigate teaching and learning within/across one or more STEM disciplines.

Although interdisciplinary in nature, graduate students in the STEM Education Ph.D. Program will have an academic home in the STEM department/program of their discipline preference. Graduate committee membership will include faculty from the STEM Education program and from the department/program of discipline preference.

The STEM Education Ph.D. program works in collaboration with (a) existing educational research programs in STEM disciplines (e.g., Biological Sciences); (b) NDSU's College Teaching Certificate Program; and (c) extramurally-funded STEM educational research projects already established at NDSU.

Applicants must have a Master's Degree or equivalent in Education or a STEM discipline for full admission. The program requires 60 semester hours beyond the Master's Degree. Additionally, by completion of the doctorate, the coursework must include either a Master's Degree or its equivalent coursework in the chosen STEM discipline (this applies if the Master's Degree is in Education or another related field). In consultation with the student's graduate committee, a plan of study will be developed to ensure that the student has a strong background in

1. curriculum, teaching, learning, and assessment,
2. educational research, and
3. content expertise within their discipline.

Core Didactic Courses (9 SH):

| | | |
|--|------------------------------------|---|
| STEM 810 | Teaching College Science | 3 |
| STEM 820 | STEM Curriculum and Instruction | 3 |
| STEM 830 | Research Methods in STEM Education | 3 |
| Educational Research Seminar (continuing enrollment throughout program, each Fall & Spring semester) | | |
| EDUC 790 | Graduate Seminar | 1 |

Elective Graduate Courses in STEM Discipline and/or STEM Education 18

(minimum of 18 SH, to meet minimum of 27 SH coursework requirement)

Didactic courses selected with approval of the graduate committee to strengthen preparation in the STEM discipline, educational research, and/or in education.

Doctoral Dissertation (minimum 9 credits)

| | |
|----------|-----------------------|
| EDUC 899 | Doctoral Dissertation |
|----------|-----------------------|

Students enrolled in program must maintain an overall GPA of at least 3.0 both within the content area and STEM courses. If the GPA in either component should drop below 3.0, then the student is placed on academic probation within the program for the following semester. If at the end of that semester the GPA still remains below 3.0, the student is subject to dismissal from the program.

William Martin, Mathematics/STEM Education

Abraham Ayebo, Mathematics/Education

Bradley Bowen, Engineering/Education

Warren Christensen, Physics/STEM Education

Paul Kelter, Director, STEM Education PhD program

Mila Kryjevskaja, Physics/STEM Education

Jennifer Momsen, Biology/STEM Education

Lisa Montplaisir, Biology/STEM Education

James Nyachwaya, Chemistry/Education

Erika Offerdahl, Biology/STEM Education