

# Discipline Based Education Research

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## Department Information

- **Program Director:**  
Jennifer Momsen, Ph.D.
- **Department Web Site:**  
[www.ndsu.edu/dber/](http://www.ndsu.edu/dber/) (<http://www.ndsu.edu/dber/>)
- **Credential Offered:**  
Ph.D. (Dual Major in DBER and STEM discipline is an option)
- **English Proficiency Requirements:**  
TOEFL iBT 88, IELTS 6.5, Duolingo 110

Applicants are invited for North Dakota State University's (NDSU) interdisciplinary Doctor of Philosophy (Ph.D.) program in Discipline Based Education Research (DBER). The program conducts and disseminates empirical research to improve STEM learning and teaching in higher education.

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

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

## Admission Requirements

Applicants will not be considered without a core faculty member who has agreed to serve as the major adviser. Applicants for the DBER Ph.D. program must meet at least one of the following criteria:

- Completed a masters (or Ph.D.) degree in a STEM discipline.
- Accepted into an NDSU master's program in a STEM discipline.
- Accepted into an NDSU Ph.D. program in a STEM discipline.

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

- discipline-based educational research at the undergraduate level,
- curriculum, teaching, learning, and assessment, and
- content expertise within a discipline.

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 remains below 3.0, the student is subject to dismissal from the program.

Code	Title	Credits
<b>Core Didactic Courses (9 SH):</b>		
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
<b>Elective Graduate Courses in STEM Discipline and/or STEM Education</b>		<b>18</b>
(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.		
<b>Doctoral Dissertation (minimum 9 credits)</b>		
EDUC 899	Doctoral Dissertation	

## **Core Faculty**

John Buncher, Physics & STEM Education

Danielle Condry, Microbiology & STEM Education

Warren Christensen, Physics & STEM Education

Mila Kryjevskaja, Physics & STEM Education

Alexey Leontyev, Chemistry & STEM Education

Jennifer Momsen, Biology & STEM Education Ph.D. Program Director

Lisa Montplaisir, Biology & STEM Education

James Nyachwaya, Chemistry, Education, & STEM Education

Katie Wissman, Psychology & STEM Education