

Mathematics and Science Education Ph.D. Requirements

Vanderbilt University requires students to complete 72 hours for the PhD. Departmental “Core Courses” comprise up to 30 of these hours, and MSE “Major Courses” another 6 hours (see list of suggested courses). Remaining hours include specialized courses (these can include a minor), further electives, and dissertation hours subject to approval of the student’s advisor. Students who enter with a Masters degree with coursework relevant to their area of study may be able to transfer coursework, subject to approval of their advisor and the Director of Graduate Studies. Students with a prior Masters degree may be able to complete coursework in three years.

	<i>Fall Courses</i>	<i>Spring Courses</i>	<i>Expected Products</i>
Year 1 (18 hrs)	Intro. to Statistical Inference ^ Learning & Instruction* Inquiry in Education* Research Group* (no credit)	MSE Seminar #1~ Research Group * (for credit) Elective	<i>First Year Paper</i> (presented as poster Fall of second year)
Year 2 (18 hrs)	Research Methods #1* Elective Elective Research Group * (no credit)	Research Methods #2* Teaching as a Social Practice* Research Group * (for credit)	<i>Second year paper</i> (presented Fall of third year)
Year 3 (18 hrs)	Electives Research Group * (no credit)	Electives Research Group * (no credit)	<i>Major Area Paper</i> (depending on coursework needs)
Year 4	Research Group * (no credit)	Research Group * (no credit)	<i>Dissertation proposal</i> (depending on progress)
Year 5	Dissertation		

* Required by the Teaching & Learning Department (enrolment in yrs 3 and 4 may be 0 hrs)

~ Required by MSE

^ Vanderbilt Graduate Program Requirement

Teaching and Learning requirements:

- **Core courses:** **24 hours**
 - Introduction to Statistical Inference (PSYC 309)
 - Inquiry into Education (EDUC 3070)
 - Learning and Instruction (EDUC 3210)
 - Teaching as Social Practice (EDUC 3040)
 - Research Methods: Two courses selected in consultation with your advisor
- Research Groups: Participation first four years, 3 credits years one and two, enrolment is required but may be for 0 hours in years three and four
- Research Papers:
 - year one: project poster delivered to the department and other PhD students (Fall of year 2)
 - year two: paper presented to the department and other PhD students
- Major Area Paper (MAP) completed and defended in year three
- **Specialization** **30 hours**
- **Electives** **9 hours**
- **Dissertation** **9 hours**

Mathematics and Science Education requirements

In addition to completing all departmental requirements for Teaching and Learning, students in the MSE sequence also will complete the following requirements:

Required MSE Seminars:

All entering students will be expected to take a required MSE Seminar each of their first two semesters. These will be selected from the following list, taught according to faculty availability in any given year:

Disciplinary Literacies in Mathematics/Science,
Learning in/out of School,
Institutional Settings for Learning
Interplay between Learning and Development,
Modeling and Forms of Argumentation,
Teaching and Professional Development in Higher Education,
Diversity and Equity in MSE

Specialized Area of Expertise

Each student will develop a program of studies designed to enable him or her to acquire expertise in a given area that is consistent with his or her career objectives and prior education and research-related experiences. Students select courses and develop a description of their area of expertise through discussion with and approval of their advisors. Each year the program reviews each students' plans along with materials required as part of the students' annual review materials.

Research Presentation Competence

Students will develop competence presenting research results by engaging in varied activities related to presenting research findings. First year projects (developed with advisor) will be shared with the department in the form of a poster presentation. Second year papers will be presented to the department in the form of a conference presentation. In addition, students will develop and submit abstracts seeking the opportunity to present research at national conferences. Students are encouraged to submit papers to national conferences as early as possible.