Ph.D. in Science Education

The Doctor of Philosophy offered by the Mallinson Institute for Science Education at Western Michigan University is for those with a science or science education background who wish to pursue careers as college or university science teachers, science education researchers, informal science educators, science teacher educators, curriculum specialists, high school science department chairs, or professionals in government agencies or school districts.

The Mallinson Institute for Science Education (MISE) offers 6 PhD programs in Science Education. Each of these programs has a shared set of requirements that are common to all of the PhD programs. All programs can be completed 1) completely in person, 2) partially in-person and partially online, or 3) completely online.

The PhD programs involved are:

1. **Ph.D. Science Education**
2. **Ph.D. Science Education: Biological Sciences**
3. **Ph.D. Science Education: Chemistry**
4. **Ph.D. Science Education: Geosciences**
5. **Ph.D. Science Education: Physical Geography**
6. **Ph.D. Science Education: Physics**

Admission Requirements: A master's degree or admission to the concurrent enrollment program

- Program 1: A master's degree in a science discipline, science education, or education with a science emphasis is required.
- Programs 2 - 6: A master's degree in the appropriate science discipline (Biological Sciences, Chemistry, Geosciences, Physical Geography, Physics) comprised of a program of study comparable to the master's level program at the appropriate WMU Department.
- Concurrent Enrollment: Students without a master's degree and interested in programs 2-6 can apply simultaneously to the master's degree program in a science discipline and the PhD program in science education. Note that this option is only available to in-person students since none of the WMU science departments currently offer online master's degree programs.

Program of Study

Science Education Coursework (24 credits)	• **SCI 6510:** Core 1: Introduction to the History, Philosophy and Sociology of Science, 3 hrs. • **SCI 6520:** Core 2: Learning Theory and Instructional Models in Science Education, 3 hrs. • **SCI 6530:** Core 3: Current Research Areas in Science Education, 3 hrs. • **SCI 6540:** Core 4: Theory and Practice of College Science Teaching, 3 hrs. • **SCI 6170:** Science Education: Early Research I, 3 hrs. • **SCI 6171:** Science Education: Early Research II, 3 hrs. • **SCI 6200:** Science Education Seminar (take three times), 1 hr. each (3 hrs. total) • **SCI 6400:** Science Education Research Experience (take three times), 1 hr. each (3 hrs. total)
Research Tools Coursework (9 credits)	Three courses in research methods for science education or social science research. Must include at least one course each in quantitative and qualitative research methods.
Doctoral Dissertation Coursework (12 credits)	**SCI 7300:** Doctoral Dissertation
Other Program Requirements	**GPA requirement:** • Earn an overall GPA of at least 3.25 in the four core courses (SCI 6510, 6520, 6530, 6540), and at least a B in each individual course. Each course can be taken one additional time to improve GPA, if needed. **Early Research Requirement (ERR). Complete a research project culminating in a paper to be:** • Presented at a MISE symposium and at a MISE approved conference, • Reviewed and approved by MISE faculty, and • Submitted to a MISE approved peer-reviewed journal. **Dissertation Proposal** **Dissertation Defense**

Typical Schedule *For a full time student, this program is designed to be completed in four years.*

	FALL	SPRING	SUMMER
YEAR 1	**6510/6540, RT 1, 6200** (7 cr total)	**6520/6530, RT 2, 6400** (7 cr total)	
YEAR 2	**6540/6510, RT 3, 6200** (7 cr total)	**6530/6520, 6170, 6400** (7 cr total)	
YEAR 3	**6171, 6200, IS (ERR work)** (7 cr total)	**Dissertation proposal (5cr), 6400** (6 cr total)	Complete any remaining ERR requirements
YEAR 4	**Dissertation (6cr)** (6 cr total)	**Dissertation (1cr)** (1 cr total)	

RT = Research Tools Course IS = Independent Study

Course Scheduling

All SCI courses will be offered in a HyFlex format, involving both in-person and virtual students. Students are expected to be available for course meetings and other MISE events from 6-9 pm ET on Mondays (all years), Tuesdays (years one and two), and Wednesdays (Spring of year 2, Fall of year 3).

	MONDAYS	TUESDAYS	WEDNESDAYS
ODD WEEKS	6-7:30 Research Group Meetings 7:45-9 6200 Seminar (Fall only)	6-8:30 MISE Core Course	6-8:30 MISE ERR Course 6170/6171
EVEN WEEKS	6-8 Student Presentations (ERR, proposals, dissertations) Note: There will likely be some weeks with no presentations		