PhD in Mathematics

Students graduating with a PhD in Mathematics should be able to:

Core Knowledge

- Demonstrate a mastery in three of the four core areas of Mathematics: Algebra, Analysis, Applied, Geometry/Topology, to a level commensurate with current standards in mathematics.
- Demonstrate mastery of advanced Mathematics within their chosen subfield, and demonstrate a breadth of knowledge in contiguous subfields.
- Demonstrate fluency in comprehension of current methods and problems in the chosen subfield.

Research Methods and Analysis

- Conduct primary research literature searches in their chosen subfield.
- Formulate and prove pure mathematical or applied methods to make progress in expanding the frontiers of mathematical knowledge.
- Students will be able to plan and execute an original research project, analyze relevant findings, and organize results into a coherent argument.

Pedagogy

- Communicate mathematical material to audiences ranging from general to specialized.
- Present their research effectively through oral presentations and through the development of supporting materials as appropriate.
- Possess classroom management skills, techniques for effective lecturing, and methods for guiding and assessing undergraduate students.

Scholarly Communication

- Communicate effectively the results of their research to professionals within their subfield, and within the broader mathematics community, through both oral presentation and written work.

Independent Research

- Complete an original, creative project that demonstrably advances human knowledge within their subfield.