

Mathematics Learning Goals and Objectives for MS and PhD students

<p>G1</p>	<p>Students will demonstrate scientific competence in Mathematics by</p> <p>O1: Successfully completing graduate courses comprising the program of study.</p> <p>O2: Successfully passing department qualifying exams. In addition, PhD students will successfully pass a written and oral Preliminary exam.</p> <p>O3: Successfully preparing and defending a written dissertation.</p> <p>O4: Giving presentations at conferences. In addition, for Phd students, submitting papers to refereed journals.</p>
<p>G2</p>	<p>Students will demonstrate mathematically reasoning by:</p> <p>O5: Understanding and constructing rigorous mathematical arguments.</p> <p>O6: Exhibiting abilities to recognize and ask questions of genuine significance to mathematicians and other scientists, formulate long-range strategies for attacking such questions, and to marshal techniques and resources to help answer the questions.</p>
<p>G3</p>	<p>Students will demonstrate a breadth and depth of knowledge of mathematics and its applications by:</p> <p>O7: Demonstrating an appreciation for the breadth of mathematics, its subfields, values and traditions.</p> <p>O8: Exposure to other fields of knowledge where mathematics plays significant roles.</p> <p>O9: Basic graduate-level training in core areas of pure and applied mathematics.</p> <p>O10: Applying mathematical principles to formulate and solve problems that arise in application and using heuristic reasoning, and numerical approximations to model natural phenomena.</p>
<p>G4</p>	<p>Students will demonstrate skill communicating mathematics effectively by:</p> <p>O11: Showing the ability to read and understand basic technical</p>

	<p>mathematics, and present mathematical ideas (to expert, as well as more general audiences) in a coherent, literate fashion, both orally and in writing.</p> <p>O12: Demonstrating skills at oral and written expression that are commensurate with what is expected of professional mathematicians.</p>
G5	<p>Students will demonstrate the ability to teach Mathematics effectively at the collegiate level by</p> <p>O13: Having a significant and successful experience at the teaching of university-level mathematics in a variety of courses</p>