

What should a Mathematics major know, be able to do, and/or have achieved when s/he graduates?

Category	Specific Goals
<p>Develop Mathematical Maturity</p>	<p>Feel comfortable finding sources Take initiative to find out things on own Intellectual independence Read proofs critically (question, understand, verify) <i>Don't take anyone's word for it</i> Move from concrete to abstract thinking and back with facility <i>Understand something well enough to create own examples</i> Analyze: what is given? what is known? what is unknown? Understand the value of a community of learners <i>Value and take advantage of group study as a tool</i> <i>Participate in (and create) a math community (people and ideas)</i> <i>Develop an advisor/advisee relationship</i> <i>Connect with past, present, future peers</i> <i>Engage each other mathematically</i> Recognize patterns and connections between other subjects and mathematics Recognize patterns and connections between areas within mathematics Synthesize ideas across math courses Read and understand symbolic language Develop symbiotic facility with symbolic and verbal/written language</p>
<p>Logical Thinking</p>	<p>Demonstrate the process, not just the answer (thinking) Provide evidence to support arguments Organize and construct a logical argument Develop problem solving "skills"</p>
<p>Communicate Effectively in All Forms (written, oral, etc.)</p>	<p>Clear, precise, thorough Understand and write for an audience Articulate arguments clearly and succinctly Speak about math before a variety of audiences (students, faculty, professionals) in a way they can understand Writing <i>Develop a voice</i> <i>Write works that are interesting to read</i> <i>Eliminate assumptions (writing should stand alone)</i> <i>Use appropriate mechanics</i></p>
<p>Intellectual Development</p>	<p>Develop self-critical skills (know what you don't know and how to address it) Risk failure for the opportunity to succeed Know how to access knowledge (learn how to learn) Develop mathematical and intellectual confidence</p>
<p>The Basics</p>	<p>Exposure to a wide variety of concepts Enjoy mathematics Preparation for a variety of challenging careers Computational ability (with use of software such as MATLAB) Math typesetting software (such as LaTeX)</p>