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<th>Learning Outcome(s)</th>
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| University of Idaho Mathematics majors should be able to think critically, apply problem solving strategies, and be able to construct and defend mathematical proofs. | **Direct Measure**  
  i. Final exam questions from Math 215 covering basic logical constructions (particularly negations and contrapositives).  
  ii. Proofs included on the final exam from Math 461.  
  **Indirect Measure**  
  Confidence in these skills as reported in focus groups of graduating students. | **Direct Benchmarks**  
  We are still setting this benchmark, but certainly a majority of math majors should demonstrate this skill on exam questions.  
  **Indirect Benchmarks**  
  A clear majority of students in exit interviews express confidence in achieving this outcome. | **Direct Findings**  
  As reported in the attached assessment report, between 5/9 and 8/9 of the math majors in Math 215 had satisfactory scores on these exam questions. For Math 461, the proportions with satisfactory answers were 7/16 and 6/16.  
  **Indirect Findings**  
  Virtually all students felt this outcome was met, especially from courses such as Math 215, Math 461, and Math 471. | Continuing our work on developing benchmarks, particularly for the direct measure. |

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**Face-to-Face Measures**
Learning Outcome(s) | University of Idaho Mathematics majors should be able to use mathematical structures and the language of mathematics to formulate models for real-world problems.

Aligns with University Learning Outcome(s): | Learn and Integrate Think and Create Communicate Clarify Purpose and Perspective

Assessment Tools and Procedures | Direct Measure Results of exam questions from Math 437 and Math 415.

Indirect Measure Student experience as reflected in focus group discussions with graduating students.

Face-to-Face Measures

Benchmarks | Direct Benchmarks We are still setting this benchmark, but certainly a majority of math majors should demonstrate this skill on exam questions.

Indirect Benchmarks A clear majority of students in exit interviews express confidence in achieving this outcome.

Findings | Direct Findings As described in the attached assessment report, a set of questions from Math 437 had satisfactory answers from 90, 90, and 75 percent of math majors.

Indirect Findings The majority of students felt this outcome was met especially from courses such as Math 310, Math 437, and Math 451, and also from applied courses in other departments as well as experiences such as undergraduate research.

Face-to-Face Findings

Curricular and Co-Curricular Changes to be Made | Further refinement of the benchmarks, especially for the direct measure.
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<td>University of Idaho students planning a career in teaching Mathematics should have an understanding of the subject sufficient for effectiveness in that career.</td>
<td><strong>Direct Measure</strong> Percentage of students (who are either Mathematics majors or complete the 47 credit Mathematics teaching major in the College of Education) who pass the Praxis Mathematics exam.</td>
<td><strong>Indirect Benchmarks</strong> Of target students taking the Praxis exam, 5 of 6 passed although one student who passed had to take the exam twice.</td>
<td><strong>Indirect Findings</strong> Face-to-Face Findings</td>
<td>Learning more about the new version of the Praxis exam, to help inform our benchmark.</td>
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**Aligns with University Learning Outcome(s):** Learn and Integrate Think and Create Communicate
**Learning Outcome(s)**

University of Idaho Mathematics majors should be able to effectively communicate their work and should gain experience working in collaborative settings.

**Aligns with University Learning Outcome(s):**
Learn and Integrate
Think and Create
Communicate
Practice Citizenship

**Assessment Tools and Procedures**

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<td>i. Class projects in Math 415. ii. Final exam questions from another course to be determined.</td>
<td>Direct Benchmarks We are still working on how to measure and benchmark this outcome.</td>
<td>Direct Findings Examples of student projects from Math 415 were collected, but we have not created a rubric for assessing the projects.</td>
</tr>
</tbody>
</table>

| Indirect Measure | Indirect Benchmarks A clear majority of students in exit interviews express confidence in achieving this outcome. | Indirect Findings Students mentioned gaining experience from forming study groups for many courses, for projects in courses such as Math 415, and from research experiences. |

**Face-to-Face Measures**

**Face-to-Face Findings**

**Curricular and Co-Curricular Changes to be Made**

We will work on developing direct measure(s) for this outcome.
Close the Loop Questions

Discuss your progress on the actions identified in your Assessment plan for 2014-15.

We have done some work on benchmarks for our measures, and can refine them further.

In what ways were the changes you made in 2014-15 effective in improving your program?

Having a clearer picture of our measures and benchmarks will help us see how well our graduates have attained the learning outcomes. Our efforts on this last year have generated good discussions about our expectations for our graduates.

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