Please list your program learning goals.

There are many program learning goals listed in our assessment report. Here we would like to focus on Student Learning Objective 2a in our most recent (2011-2013) assessment report.

“Students will have learned how to guide their exploratory thinking when formulating and analyzing conjectures. They will have learned the rudimentary tools that are needed for constructing rigorous proofs; these tools include elementary logic and set theory, mathematical induction, relations, and functions. Students will also have learned how to articulate their arguments in sound mathematical English. “

What assessment finding(s) is the department addressing?

MATH 301 (Exploration and Proof), is a required course of math majors, and is a curricular host of the SLO 2a outlined above. Within MATH 301, there are six Measurable Student Learning Outcomes (MSLO [1] through [6]); these metrics for assessment are more refined than the course grade. The most recent assessment (2011-2013) concluded that more effort needs to be invested in MSLO [6] “cardinality concepts", because its risk index (failure rate of students who performed poorly on MSLO [6] versus the failure rate for all students in the course) has gone up slightly when compared to an earlier assessment.

What was the process through which faculty considered a response to those findings? A department meeting? A special meeting about assessment? An end of the semester or academic year retreat? A department assessment or curriculum committee?

The said finding was discussed briefly during a departmental meeting, and then in more depth among some of the instructors of MATH 301.
What changes have you made or are you seeking to make in order to address the findings?

During the discussions, it came to light that MSLO [6] “cardinality concepts” was taught near the end of the semester, when there was less time for the instructor to reinforce that learning and for the students to master that knowledge. Thus it was not a deliberate lack of effort that resulted in the risk index going up, but a matter of priorities. We also realized that any effort to improve the course would be better spent on MSLO [2] “definition-axiom-theorem” and MSLO [3] “writing correct proofs” instead, because these two MSLOs are key indicators of how well-prepared our math majors are for their subsequent core courses.

What assessment activities do you plan to undertake next academic year? Is there a particular program learning goal that you would like to assess? Are there other assessment findings that you’d like to address? In light of your assessment work, changes in the field, or other influences, do you want to take the opportunity to revise the program goals next year? Will you move on to assess a different learning goal?

For the next academic year (2016-2017), we would like to invest more effort in MSLOs [2] & [3], as follows.

(a) We would like to make more specific our expectations in MSLO [2] “definition-axiom-theorem” and MSLO [3] “writing correct proofs”.
(b) We would like to share resources and activities (such as lesson plans and homework assignments) among instructors, with the hope that this mutual benefit will enhance the students’ performances on MSLOs [2] & [3].
(c) We would like to cultivate in the students an appreciation for the difference between the skeletal logical structure of a proof versus the equally important communicative aspects (key insight, viable idea, main ingredients, flow of the story line, impact of the conclusion, role in the Big Picture) of the same proof.
(d) We shall attempt to develop a common assessment mechanism for those two MSLOs, with the hope of constructively accounting for the difference in student performance that is possibly a reflection of different instructors’ teaching styles.