Student Learning Summary Form AY2016-17

Due to your dean by June 1
Due from dean to assessment office by June 15

Degree Program Name: ___BS in Mathematics_____ **Contact Name and Email** ___Henjin Chi, Henjin.Chi@indstate.edu_____

Before you complete the form below, review your outcomes library and curriculum map to ensure that they are accurate and up to date. If not, you may submit a new version along with this summary.

Part One

a. What learning outcomes did you assess this year? If this is a graduate program, indicate the Graduate Student Learning Outcome* each outcome aligns with.	b. (1) What method(s)s did you use to determine how well your students attained the outcome? (2) In what course or other required experience did the assessment occur?	c. What expectations did you establish for achievement of the outcome?	d. What were the actual results?	e. (1) Who was responsible for collecting and analyzing the results? (2) How were they shared with the program's faculty?
Objective 1: Students will learn to use and construct logical arguments. Outcome 1.1 Student will construct direct proofs.	(1) Samples from Assignments and Test to demonstrate the students understanding of the drect proof (2) Math 380 class.	Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.	The students that turn in their assignments show that their proof is correct.	Dr Ko in Fall 2016, and Dr. Johnson in Spring 2017 turn in the copies of the student works to the mathematics department office.
Objective 1: Students will learn to use and construct logical arguments. Outcome 1.2 **Students will construct proofs by contradiction.**	(1) Problem on Homework or Quiz or Exam. (2) Math 380 class.	Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.	Most students get it correct on proofs by contradiction	Dr Ko in Fall 2016, and Dr. Johnson in Spring 2017 turn in the copies of the student works to the mathematics department office.

<u>Objective 1:</u> Students will learn to use and construct logical arguments. **<u>Outcome 1.3</u>** **Students will construct proofs by induction.**	**(1) Problem on Homework or Quiz or Exam.** **(2) Math 380 class.**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**Most Students get it correct on proofs by Induction**	**Dr Ko in Fall 2016, and Dr. Johnson in Spring 2017 turn in the copies of the student works to the mathematics department office.**

<u>Objective 1:</u> Students will learn to use and construct logical arguments. **<u>Outcome 1.4</u>** **Students will construct examples and counterexamples.**	**(1) Problem on Homework or Quiz or Exam.** **(2) Math 380 class.**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**Most of the students who turn in their paper get it correct.**	**Dr. Ko in Fall 2016 and Dr. Johnson in Spring 2017 turn in the copies of the student works to the mathematics department office.**
<u>Objective 2:</u> Students will communicate mathematics effectively. **<u>Outcome 2.1:</u>** Students will produce a proof involving limits.	**(1) Problems on Exam 2.** **(2) Math 410 class**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**Out of 11 students that turn in exam paper. The average is 74.6 out of 100.**	**Dr. Roberts in Fall 2016 turn in the copies of the exam 2 to the mathematics department office**
<u>Objective 2:</u> Students will communicate mathematics effectively. **<u>Outcome 2.2:</u>** Students will produce a proof involving algebraic structures.	**(1) Problem on Homework.** **(2) Math 412 class**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**Most paper shows correct result.**	**Dr. Frost in Fall 2016 turn in the copies of the homework to the mathematics department office**

Objective 2: Students will communicate mathematics effectively. **Outcome 2.3:** Students will somehow apply mathematics in an applied problem.	**(1) Problem on Homework or Quiz or Exam** **(2) Math 413 class**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**Most paper shows correct result.**	**Dr. Hopkins taught in Spring 2017 and Dr. Zhao in Spring 2016 Turn in the final result.**
Objective 2: Students will communicate mathematics effectively. **Outcome 2.4:** Students will solve a real-world problem and explain their solution.	**(1) Problem on Homework or Quiz or Exam** **(2) Math 231 class**	**Target: 70th percent of the students completing the course will be assessed by the committee as meeting or exceeding expectation.**	**No result**	**Dr. Roberts Spring 2017, Dr Roberts Fall 2016, and Dr. Zhang Spring 2016 did not report any finding.**
Objective 3: Students will demonstrate that they are ready to use their mathematical skills in a postbaccalaureate position. **Outcome 3.1: Students will demonstrate mastery of undergraduate mathematics that will allow them to pursue graduate studies in the mathematical sciences.**	**Measure: ETS Major Field Test—standardized exam taken in students' final spring or fall semester** **(1) Math 494**	**Target: 70% of the students completing and passing will be assessed as meeting or exceeding expectations (at least 40th percentile but less than 70th percentile) or exceed expectations (at least 70th percentile)**	**No Result.**	**The mathematics department offer Math 494 class in Spring 2017. No students sign up for the class,**
Objective 3: Students will demonstrate that they are ready to use their mathematical skills in a postbaccalaureate position. **Outcome 3.2: Students will demonstrate mastery of mathematics and related content that will allow them to pursue careers utilizing their knowledge.**	**Measure: post-calculus grade point average in mathematics and related minors or second majors**	**Target: 70% of the graduating students will meet expectations (at least 3.00 but less than 3.75) or exceed expectations (at least 3.75)**	**No Result.**	

* See https://www2.indstate.edu/graduate/forms/review.pdf.

If you would like to report on more than three outcomes, place the cursor in the last cell on the right and hit "tab" to add a new row.

Notes

a. Use your outcomes library as a reference.
b. Each outcome must be assessed by at least one direct measure (project, practica, exam, performance, etc.). If students are required to pass an examination to practice in the field, this exam must be included as one of the measures. At least one of the outcomes must use an indirect measure (exit interview, focus group, survey, etc.). Use your curriculum map to correlate outcomes to courses.
c. Identify the score or rating required to demonstrate proficiency (e.g., Students must attain a score of "3" to be deemed proficient; at least 80% of students in the program will attain this benchmark."
d. Note what the aggregate level of proficiency actually was and the number of students included in the cohort or sample (e.g., "85% of the 25 students whose portfolios were reviewed met the established benchmark).
e. This may be a specific individual, a position (e.g., assessment coordinator), or a group such as the department assessment committee. Minutes should reflect that results are shared with members of the department at least annually.

Part Two

In no more than one page, summarize 1) the discoveries assessment has enabled you to make about your students' learning, the curriculum, departmental processes, and/or the assessment plan itself; 2) the changes and improvements you have made or will make in response to these discoveries and/or the coordinator's feedback on the previous summary; and 3) what your assessment plan will focus on in the coming year.

If you would like to reference any supporting materials (departmental meeting minutes, detailed assessment results, etc.), please provide the URL at which they can be found.

1) The assessment plan has been in place for one year in its current form. We are catching up on our assessment plan.

2) We have several meeting to adjust our assessment plan in the Objective 2 of our assessment.

3) We will implement our Objective 3 in the coming year.

Student Learning Summary Report Rubric :: Office of Assessment & Accreditation :: Indiana State University

Degree Program: BS in Mathematics Date: 01.20.18

	Level 0 – Undeveloped	Level 1 – Developing	Level 2 – Mature	Level 3 – Exemplary
1. Student Learning Outcomes	☐ No outcomes were identified. ☐ No Curriculum Map was provided.	☒ Outcomes were identified. ☒ Some of the outcomes are specific, measurable, student-centered, program-level outcomes. ☒ A Curriculum Map was provided.	☐ Outcomes are specific, measurable, student-centered, program-level outcomes. ☐ Outcomes at least indirectly support Foundational Studies Learning Outcomes or the Graduate Learning Goals. ☐ The Curriculum Map identifies where/to what extent each outcome is addressed. ☐ At least one outcome was assessed in this cycle.	☐ Outcomes are important, specific, measurable, student-centered program-level outcomes that span multiple learning domains. ☐ Outcomes directly integrate with Foundational Studies Learning Outcomes or the Graduate Learning Goals. ☐ Outcomes reflect the most important results of program completion (as established by an accreditor or other professional organization). ☐ Learning outcomes are consistent across different modes of delivery (face-to-face and online.) ☐ Outcomes are regularly reviewed (and revised, if necessary) by the faculty and other stakeholders. ☐ The Curriculum Map identifies where/to what extent each outcome is

				addressed and offers evidence that students have sufficient opportunity to master the associated learning outcomes. ☐ Two or more outcomes were assessed in this cycle. **??**
2. Measures & Performance Goals	☐ No measures are provided. ☐ No goals for student performance are identified.	☒ Measures are provided, but some are vague and/or do not clearly assess the associated outcomes. ☐ Measures are primarily indirect. ☒ Performance goals are identified, but they are unclear or inappropriate. ☐ Some performance goals are based on course and/or assignment grades, but there is no evidence that grades are calibrated to the outcomes.	☐ At least one direct measure was provided for each outcome. ☐ Some information is provided to suggest that measures are appropriate to the outcomes being assessed. ☐ Clear and appropriate standards for performance are identified. ☐ Some performance goals are based on course and/or assignment grades, and general information is provided to demonstrate that grades are calibrated to the outcomes. ☐ Mechanisms used to assess student performance (rubrics, checklists, exam keys, etc.) were provided.	☐ Multiple measures were employed, and most are direct. ☐ Detailed information is provided to show that measures are appropriate to the outcomes being assessed. ☐ Measures assess some high impact practices (internships, capstone course projects, undergraduate research, etc.) ☐ If students are required to pass a certification or licensure exam to practice in the field, this was included as a measure. ☐ Some measures allow performance to be gauged over time, not just in a single course. ☐ If a measure is used to assess more than one

				outcome, a clear explanation is offered to substantiate that this is appropriate. ☐ Clear and appropriate standards for performance are identified and justified. ☐ Mechanisms used to assess student performance (rubrics, checklists, exam keys, etc.) were summarized as well as provided to demonstrate that the measure provides specific evidence of what students know/can do. ☐ If performance goals are based on course and/or assignment grades, specific evidence is provided to demonstrate that grades are calibrated to the outcomes.
3. Results	☐ No data are being collected. ☐ No information is provided about the data collection process. ☐ No results are provided. ☐ Students are meeting few of the performance standards set for them.	☒ Some data are being collected and analyzed. ☒ Some results are provided. ☒ Insufficient information is offered to demonstrate that data collection, analysis, and interpretation processes are valid. ☐ Students are achieving	☐ Data are being collected and analyzed. ☐ Results are provided. ☐ Some information is offered to demonstrate that data collection, analysis, and interpretation processes are valid and meaningful. ☐ Students generally are achieving the performance	☐ Clear, specific, and complete details about data collection, analysis, and interpretation of results are provided to demonstrate the validity and usefulness of the assessment process. ☐ Students generally are achieving the performance standards expected of them and demonstrate continuous improvement on standards

		some of the performance standards expected of them. **??**	standards expected of them.	they have yet to achieve/achieve less well. ☐ If students are required to pass a certification or licensure exam to practice in the field, the pass rate meets the established benchmark.
4. Engagement & Improvement	☐ No one is assigned responsibility for assessing individual measures. ☐ Assessment primarily is the responsibility of the program chair. ☒ No improvements (planned or actual) are identified. ☒ No reflection is offered about previous results or plans.	☐ The same faculty member is responsible for collecting and analyzing most/all assessment results. ☒ It is not clear that results are shared with the faculty as a whole on a regular basis. ☐ Plans for improvement are provided, but they are not specific and/or do not clearly connect to the results. ☐ Little reflection is offered about previous results or plans.	☒ Multiple faculty members are engaged in collecting and analyzing results. ☐ Results regularly are shared with the faculty. ☐ The faculty regularly engages in meaningful discussions about the results of assessment. ☐ These discussions lead to the development of specific, relevant plans for improvement. ☐ Improvements in student learning have occurred as the result of assessment.	☐ All program faculty members are engaged in collecting and analyzing results. ☐ Faculty regularly and specifically reflect on students' recent achievement of performance goals and implement plans to adjust activities, expectations, outcomes, etc. according to established timelines. ☐ Faculty and other important stakeholders reflect on the history and impact of previous plans, actions, and results, and participate in the development of recommendations for improvement. ☐ Continuous improvement in student learning occurs as the result of assessment. ☐ Outcomes and results are

				easily accessible to stakeholders on/from the program website. ☐ Assessment is integrated with teaching and learning.
Overall Rating	☒ **Level 0 – Undeveloped**	☐ **Level 1 - Developing**	☐ **Level 2 – Mature**	☐ **Level 3 – Exemplary**

The program assessed ten outcomes, most of them measurable (the exception is 2.3), and most of them still too narrow to be program-level outcomes. Multiple direct assessment measures such as homework problems, quizzes, and the Major Field Test are in place, but there is no information to demonstrate that they are aligned with the outcomes. Also, performance expectations and results are vague. You can remedy this fairly easily by using the objectives as your outcomes, and your outcomes as the measures. Here's an example:

Outcome: Students will be able to construct logical arguments.

Measure: Students will construct direct proofs in three Math 380 homework assignments.

Expectation: On average, students will construct at least 7 of 10 proofs correctly.

Results: 60% (15 of 25) of students met the performance expectation

Etc.

Once you have a more solid plan in place, you will be able to collect meaningful results and use them to develop plans for improvement. Good luck!