Student Outcomes Assessment and Success Report AY2018-19   *Consult with your college dean's office regarding due date and how to submit. Deans will submit reports to the Office of Assessment & Accreditation annually by October 15.*

Unit/Program Name: Mathematics Teaching   **Contact Name(s) and Email(s)**: Winnie Ko; Winnie.Ko@indstate.edu

Part 1a: Summary of Student Learning Outcomes Assessment

a. What learning outcomes did you assess this past year? If this is a graduate program, identify the Graduate Student Learning Outcome each outcome aligns with.	b. (1) What assignments or activities 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 were your expectations for student performance?	d. What were the actual data/results?	e. What changes or improvements were made or will be made in response to these assessment results or feedback from previous year's report? *Can expand on this in Part 2.*
1. Accurately identifies and applies content and process standards for middle or high school mathematics.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should accurately identify and apply the content and the process standards either (1) most of the time or (2) all the time throughout the unit plan.	• Only 50% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should accurately identify and apply the content and the process standards either (1) most of the time or (2) all the time throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• Although all of our students met this expectation, several of them were unable to accurately identify and apply the content and the process standards all the time throughout a lesson plan. In Fall 2019, Dr. Winnie Ko, the instructor of Math 391, has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to

				identify relevant content and process standards.
2. Clearly relates middle or high school mathematics curriculum standards to student learning.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should relate mathematics curriculum standards either (1) most of the time or (2) all the time throughout the unit plan.	• Only 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should accurately relate mathematics curriculum standards either (1) most of the time or (2) all the time throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• Although all of our students met this expectation, several of them were unable to accurately relate mathematics curriculum standards all the time throughout a lesson plan. In Fall 2019, Dr. Winnie Ko, the instructor of Math 391, has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards.
3. Uses high-level cognitive demand tasks for rich mathematical learning experiences.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should use at least two high-level cognitive demand tasks to lead students to learn both procedural fluency and conceptual understanding throughout the unit plan.	• Only 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall

				student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at 80% of our students should use at least two high-level cognitive demand tasks to lead students to learn both procedural fluency and conceptual understanding throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• Although all of our students met this expectation, several of them were unable to accurately relate mathematics curriculum standards all the time throughout a lesson plan. In Fall 2019, Dr. Winnie Ko, the instructor of Math 391, has asked students to modify more procedure-based tasks to be high-level tasks. These opportunities seem to develop students' abilities to use high-level tasks in their teaching and critique peers' teaching in class.
4. Incorporates a variety of strategies and differentiated instruction.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should use at least two instructional strategies, and there is an attempt to differentiate instruction throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plan (Fall 2018)	• We expect that 80% of our students should use at least two instructional strategies, and there is an attempt to differentiate instruction throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to incorporate a variety of articles and video cases with a focus on

				instructional strategies into the course.
5. Uses mathematics-specific materials and instructional technologies.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should use at least two tasks that incorporate calculators, other technologies, and concrete materials throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
6. Provides students with opportunities to communicate about mathematics.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should provide opportunities for their students to communicate mathematics with either peer-to-peer or peer-to-teacher throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should provide opportunities for their students to communicate mathematics with either peer-to-peer or peer-to-teacher throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to incorporate a variety of articles and video cases with a focus on communication mathematical ideas into the course.
7. Guides meaningful mathematical discussions.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should use two strategies for teachers'	• 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math

		moves (e.g., waiting, inviting student participation, re-voicing, asking their students to re-voice, probing a student's thinking, or creating opportunities to engage with another's reasoning) to guide meaningful mathematical discussions throughout the unit plan.		388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should use two strategies for teachers' moves (e.g., waiting, inviting student participation, re-voicing, asking their students to re-voice, probing a student's thinking, or creating opportunities to engage with another's reasoning) to guide meaningful mathematical discussions throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to incorporate a variety of articles and video cases with a focus on mathematical discussion into the course.
8. Accurately identifies key mathematical ideas related to middle or high school mathematics.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should occasionally provide evidence of accurately identifying key mathematical ideas throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should occasionally provide evidence of accurately	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to

		identifying key mathematical ideas throughout a lesson plan.		incorporate a variety of mathematical tasks and video cases into the course so that students will have opportunities to identify key ideas of mathematics.
9. Demonstrates the ability to identify and address students' misconceptions.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should occasionally provide evidence of identifying and addressing middle school students' misconceptions throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should occasionally provide evidence of identifying and addressing secondary school students' misconceptions throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to incorporate a variety of video cases into the course so that students will have opportunities to identify secondary school students' misconceptions.
10. Uses a range of questioning strategies.	• Math 388-Unit Plan (Spring 2019)	• We expect that 80% of our students should use two questioning strategies (e.g., re-voicing, asking students to restate someone else's reasoning, asking their students to apply their own reasoning to someone else's reasoning, promoting their students for further participation, or using wait time) throughout the unit plan.	• 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should

			cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that 80% of our students should use two questioning strategies (e.g., re-voicing, asking students to restate someone else's reasoning, asking their students to apply their own reasoning to someone else's reasoning, promoting their students for further participation, or using wait time) throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• As 100% of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, will continue to incorporate a variety of articles video cases with a focus on questioning strategies into the course.
11. Uses appropriate formative assessment to inform instruction.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should use at least two appropriate formative assessments associated with learning goals of the lessons throughout the unit plan.	• 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should use at least two appropriate formative assessments associated with learning goals of the lessons throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• Although all of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, plans to ask students to use at least two formative assessments in their lesson plans in the future. This way can help students think about how to incorporate a variety of formative assessments aimed at accessing and evaluating secondary school

				students' learning of mathematics.
12. Uses appropriate summative assessments to inform instruction.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should use at least two appropriate summative assessments associated with learning goals of the lessons throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should use at least two appropriate summative assessments associated with learning goals of the lessons throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• Although all of our students met this expectation, Dr. Winnie Ko, the instructor of Math 391, plans to ask students to use at least two summative assessments in their lesson plans in the future. This way can help students think about how to incorporate a variety of summative assessments aimed at accessing and evaluating secondary school students' learning of mathematics.
13. Includes a reflection on appropriate mathematical proficiencies essential for all students.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should attempt to address the appropriate mathematical proficiencies essential for all students throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should

				cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should attempt to address the appropriate mathematical proficiencies essential for all students throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• No changes will be made in response to this assessment result.
14. Exhibits knowledge of adolescent learning, development, and behavior.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should use some tasks to demonstrate knowledge of adolescent learning, development, and behavior throughout the unit plan.	• 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should use some tasks to demonstrate knowledge of adolescent learning, development, and behavior throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• No changes will be made in response to this assessment result.
15. Demonstrates a positive disposition toward mathematical processes and learning.	• Math388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should sometimes demonstrate a positive disposition toward mathematical processes and learning throughout the unit plan.	• 75% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should

				cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should sometimes demonstrate a positive disposition toward mathematical processes and learning throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• No changes will be made in response to this assessment result.
16. Provides developmentally appropriate, sequential, and challenging learning opportunities.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should sometimes provide appropriate, sequential, and challenging learning opportunities throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should cause a complete course adjustment.
	• Math 391-Lesson Plans (Fall 2018)	• We expect that at least 80% of our students should sometimes provide appropriate, sequential, and challenging learning opportunities throughout a lesson plan.	• 100% of the students (n=10) met this expectation.	• No changes will be made in response to this assessment result.
17. Uses mathematics-specific technology effectively in building new knowledge.	• Math 388-Unit Plan (Spring 2019)	• We expect that at least 80% of our students should use at least half of the tasks that can be integrated with instructional tools effectively and appropriately throughout the unit plan.	• 100% of the students (n=4) met this expectation.	• We only had four students' data for this report. Dr. Jodi Frost, the instructor of Math 388, recently incorporated more technology into the course and that has seen positive increases in related measures. With such a small size of students, it is difficult to know if this information reflects overall student trends that should

				cause a complete course adjustment.
18. Accurately uses the order of number operations.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students should accurately use the order of number operations at least 65% of the time.	• 100% of the students (n=8[1]) met this expectation.	• No changes will be made in response to this assessment result.
19. Accurately uses the ideas of factors and the greatest common factor.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students should accurately use the ideas of factors and the greatest common factor at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
20. Accurately uses algebraic language to describe the meaning of functions and equations in mathematics.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students should use correct language to describe the meaning of functions and equations in mathematics at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
21. Accurately uses algebraic notation and symbols to solve equations and inequalities.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that 80% of our students should use correct algebraic notation, and symbols to solve and explain equations and inequalities at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
22. Accurately simplifies and manipulates rational expressions.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that 80% of our students should correctly simplify and manipulate rational expressions at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
23. Accurately uses properties of linear functions, inequalities, systems of linear equations.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that 80% of our students should correctly use properties of linear functions, inequalities, systems of linear equations at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.

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[1] One student changed her major from mathematics teaching to middle school mathematics teaching while taking Math 391 in Fall 2018. Thus, she is doing her student teaching in Fall 2019. Also, one student who successfully passed Math 391 in Fall 2018 will be doing her student teaching in Spring 2020.

24. Accurately identifies behaviors of nonlinear functions and relationships between their various representations.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students should correctly identify behaviors of nonlinear functions and relationships between their various representations at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
25. Accurately uses properties of right triangles.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students should correctly use properties of right triangles at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
26. Accurately uses properties of limits and continuity and identifies their relationships with graphs of functions.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2019)	• We expect that at least 80% of our students correctly use properties of limits and continuity and identifies their relationships with graphs of functions at least 65% of the time.	• 100% of the students (n=8) met this expectation.	• No changes will be made in response to this assessment result.
27. Successfully passes the licensure exam.	• Indiana CORE Assessment for Educator Licensure Field 035 Mathematics (Spring 2019 & Summer 2019)	• We expect that at least 80% of our students should successfully pass the licensure exam with a score of at least 220.	• 71% (n=5) of the students (n=7[2]) successfully passed the licensure exam.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective," and have added a required statistics course, "Math 241: Principles of Statistics," aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, Statistics, Trigonometry, and Numbers and Operations.

Note: *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.*

Helpful Hints for Completing this Table
   a.   Use your outcomes library as a reference. Note any alignment with professional standards, as applicable.

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[2] Eight students completed the mathematics teaching major in Spring 2019, but one did not take the licensure exam.

b. Each outcome should 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 should be included as one of the measures. At least one of the program's outcomes must use an indirect measure (exit interview, focus group, survey, etc.). Use your curriculum map to correlate outcomes to courses. Describe or attach any evaluation tools such as rubrics, scales, etc.

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).

Part 1b: Review of Student Success Data & Activities

Use Blue Reports to generate the following information (as well as any other information helpful to you):

1) Cohort Sizes   2) Year-to-Year Retention   3) 5-Year Graduation Rate

What worked well in supporting student success this year?

According to the results shown in Part 1a, it is clear that all mathematics teaching majors enrolled in Math 391 during the fall 2018 semester and in Math 402 during the spring 2019 semester met our expectations in all of the learning outcomes. These learning outcomes depicted in Part 1a are aligned with the National Council of Teachers of Mathematics (NCTM) secondary program standards for the Council of the Accreditation of Educator Preparation (CAEP), which can be found at https://www.nctm.org/uploadedFiles/Standards_and_Positions/CAEP_Standards/NCTM%20CAEP%20Standards%202012%20-%20Secondary.pdf. Although we have a small size of the cohort in the 2019-2020 academic year, it seems that one or two mathematics teaching majors seemed to have difficulty (1) accurately identifying and applying content and process standards for middle school mathematics; (2) clearly relating middle school mathematics curriculum standards to student learning; (3) employing a range of questioning strategies; (4) using high-level cognitive demand tasks for rich mathematical learning experiences; (5) guiding meaningful mathematical discussions; (6) using appropriate formative assessment to inform instruction; (7) exhibiting knowledge of adolescent learning, development, and behavior; and (8) demonstrating a positive disposition toward mathematical processes and learning when taking Math 388 in Spring 2019 based on the results from Part 1a. Those mathematics teaching majors who enrolled in Math 388 in Spring 2019 are currently taking Math 391 in Fall 2019, and they are provided with more opportunities to learn (1) how to identify and apply content and process standards (2) how to ask different types of questions and use various questioning strategies, (3) how to use various ways to modify and incorporate high-level tasks, (4) how to incorporate a variety of formative assessments into mathematics teaching and lesson plans, and (5) how to use the development and behaviors of pre-adolescent and adolescent learning into mathematics teaching by reading mathematics teaching oriented articles, solving mathematical tasks, analyzing published real high school mathematics classroom videos, and teaching lessons in class. By reading this cohort of the students' first lesson plan for Math 391 and observing their first in-class teaching in Math 391, they clearly demonstrated their knowledge of the aforementioned areas of mathematics teaching.

While we had 10 students who successfully passed Math 391 in Fall 2018, one of the students changed her major from mathematics teaching to middle school mathematics teaching in the middle of the semester, which made her do her student teaching in Fall 2019. Another one is retaking some of required mathematics courses in Fall 2019 to raise her GPA, so she will be doing her student teaching in Spring 2020. Thus, we only had eight students who completed the program in Spring 2019. As seen in Part 1(a), only five of the seven students successfully passed the Indiana licensure exam, as one student who completed the program did not take the exam. While mathematics teaching majors are required to take a variety of mathematics courses covered by the licensure exam, including Numbers and Quantity, Algebra, Geometry and Trigonometry, Statistics and Probability, Calculus, and Discrete Mathematics, some of them seemed to have difficulty connecting their mathematical knowledge within and across mathematical content domains. To better help our students be able to apply their mathematical knowledge within and across content domains, we have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective," and have added one more required statistics course, "Math 241: Principles of Statistics." We hope to see that 100% of our students who completed the program successfully pass the licensure exam in the near future.

What are the most significant opportunities for improvement upon which to focus in the coming year?

Due to the fact that we did not have a transition analysis course for students to complete prior to taking Math 410 "Introduction to Analysis" in the past years, the majority of our mathematics teaching majors had considerable difficulty with the course. To keep our students in the program and to help them make sense of analysis, we have developed and implemented a new course "Math 310: Elementary Analysis" in Fall 2019. We hope that this transition course can better promote our students' learning and understanding of the concepts related to analysis.

Currently, the majority of our mathematics teaching majors are mathematics coaches for the math lab where is the place for undergraduate students who are taking Math 015, Math 035, Math 115, Math 131, Math 132, and Math 241 to come for help. Being a mathematics coach is very beneficial to mathematics teaching majors because they have experience using multiple ways to solve a problem, seeing misconceptions undergraduate students have, asking different types of questions to promote undergraduate students' thinking, and answering questions appropriately. In the coming year, we will continue to recruit mathematics teaching majors to be a mathematics coach for the math lab and provide timely support for them to develop better skills in using multiple ways to explain their mathematical reasoning, asking different types of questions to promote students' understanding of mathematics, and supporting students to engage in productive struggle.

Finally, mathematics education faculty members have developed and approved required topics and learning outcomes for "Math 308: Middle School Mathematics from Advanced Perspective" and "Math 323: College Geometry," which will help an assigned instructor for each of the aforementioned courses to cover all the required topics and have the same learning outcomes. In the coming year, we are planning to develop and discuss required topics and learning outcomes for "Math 408: High School Mathematics from Advanced Perspective."

Part 1c: Summary of Career Readiness Activities
Please submit your Career Readiness Competencies curriculum map along with this report as a separate attachment. You can find the template here: https://www.indstate.edu/assessment/plan-components

Part 2: Continuous Quality Improvement
Reflect on the information shared above regarding student learning, success, and career readiness. In no more than one page, summarize:
1) **the discoveries assessment and data review have enabled you to make about student learning, success, and career readiness** (ex: What specifically do students know and do well—and less well? What evidence can you provide that learning is improving? How might learning, success, and career readiness overlap? What questions do your findings raise?)
2) **findings-based plans and actions intended to improve student learning and/or success (expansion of Part 1a, box e as needed)**
3) **what your assessment plan will focus on in the coming year**
4) **how this information will be shared with other stakeholders**

Each of the mathematics education academic advisors meets with her advisees regularly and sees if her advisees are doing ok as a semester progresses. This way really helps mathematics teaching majors to get appropriate support from their advisors, as well as to keep their academic performance and their completion of the program. All mathematics teaching majors who completed Math 131 and Math 132 are strongly encouraged to become a mathematics coach for the math lab to help undergraduate students with Math 015, Math 035, Math 115, Math 131, Math 132, and Math 241. Being a mathematics coach for a mathematics course provides a great opportunity for him/her not only to interact with undergraduate students and demonstrate and apply their knowledge of mathematics, but also to learn how to become an effective mathematics teacher in the future. Also, most of our mathematics education courses are taught with student centered instruction, which creates a learning environment our students to develop their critical thinking skills through solving problems on their own, to promote their communication skills by explaining mathematical ideas in small groups and to the whole class, and to collaboratively work with peers in small groups and/or projects, and to help them recognize the value of different ideas when sharing thought processes. In addition, mathematics teaching majors enrolled in Math 391 have an opportunity to learn how to draft their resume and cover letter, to leave comments on

their peers' job materials, and to practice job interview questions. This practice has been beneficial to mathematics teaching majors before they are on the job market.

Regarding our assessment plan for the 2019-2020 academic year, we will continue to collect and analyze mathematics teaching majors' unit plans from Math 388, their lesson plans from Math 391, and their assessment from Math 402. We are planning to create online survey questions for host teachers to evaluate mathematics teaching majors' performance in their student teaching, which would help us see if our mathematics teaching majors are prepared with sufficient content knowledge and pedagogical knowledge for teaching mathematics at the middle and high school level. We are also planning to design a new assessment, along with the assessment rubrics, aimed at analyzing how our students develop knowledge, skills, and professional behaviors across both middle and high school mathematics classrooms, examining how they teach middle and high school mathematics, and how their middle and high school students learn mathematics in order to address the NCTM CAEP secondary program standard 7(c). At mathematics education curriculum meetings, we will share the online survey, this new assessment, as well as its rubrics. We will also discuss what other types of assessment data we would like to collect from our mathematics education courses. Results of all assessments that we collect and analyze for our program annual assessment report will be also shared with the mathematics education program faculty members at meetings.

Please prepare this report as a Word document. Do not include any attachments. Instead, provide links to important supporting materials
(e.g., detailed—but not student-specific--assessment results; rubrics; minutes; etc.), or upload them to the college's assessment site in Blackboard.

Dear Winnie,

Thank you so much for sharing your assessment process and findings for AY 2018-19 with the Assessment Council. You will find feedback and ratings on the rubric below. It is understood that some of the feedback might encompass practices that you already engage in but were not documented in this report. As the purpose of this evaluation is focused on recognizing great work and helping faculty improve assessment practice, it is not necessary to retroactively add documentation. Please feel free to let me know if you have any questions or if there is any way I can assist you in further developing assessment in your program.

This report will be shared with the Associate Dean(s) and Dean of your college and summarized findings will be shared as composite college/institutional data with the President's Office and the Provost's team.

Sincerely,

Kelley (x7975)

Program: B.S. Mathematics Teaching	Overall Rating: Mature (2.19/3.00)
Strengths	Recommendations
- Learning outcomes are clear, specific, and measurable, and are aligned with NCTM CAEP standards. - Clear information provided about courses, assignments, licensure exams, and timeline for assessment of each learning outcome. Some outcomes assessed using data from multiple points in time, providing an opportunity for formative assessment and/or triangulation of findings. - Clear information provided about expected and actual student performance. - Great use of findings to identify possible areas for more focus and new courses to better support students in translating their learning to application and to the licensure exam. - Excellent recommendations for strengthening assessment through use of a rubric and use of host teacher evaluations. - Great sharing with and involvement of faculty.	- Did you assess all learning outcomes this year because the program is new or were required for NCTM/CAEP? Moving forward you can assess a limited number of outcomes each year on a cycle so that you assess them all within a defined period of time. - Provide a little more information about how student performance was evaluated on the unit plan and lesson plan assignments and content knowledge assessment. Since these measures were used to indicate achievement of multiple learning outcomes, more information about whether an analytical rubric and/or an exam key that links specific questions to specific outcomes were used would help the evaluator make better recommendations about your assessment practice and data quality.

Student Outcomes Assessment & Success Report Rubric   Unit/Program: BS Mathematics Teaching
Office of Assessment & Accreditation, Indiana State University   Evaluation Date: 1/3/20

Evaluation Criteria	Exemplary	Mature	Developing	Undeveloped
Student Learning Outcomes	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcome(s) is specific, measureable, and student-centered. Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.) Learning outcome(s) directly link to college, institutional, and/or accreditor goals/standards.	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcome(s) is specific, measureable, and student-centered. Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)	At least one learning outcome that is aligned with program coursework is assessed this cycle. Learning outcomes(s) is measurable.	No learning outcomes are identified for assessment or the outcomes that are identified are not linked to program outcomes aligned with program coursework (e.g. – curriculum map) or are not measurable.
Performance Goals & Measures	Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.). Identified measures are designed to accurately reflect student learning, including at least one direct measure. Tools used to measure student performance are described and were reviewed for validity or trustworthiness prior to use (note this in the report; attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).	Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.). Identified measures are designed to accurately reflect student learning, including at least one direct measure. Tools or processes for evaluating student performance on measures are described (attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).	Performance goal(s) is identified for each learning outcome. Identified measures (ex: assignments, projects, tests, etc.) are poorly suited to performance goals or are solely indirect measures. Tools or processes for evaluating student performance on measures are not described.	No goals for student performance of learning outcomes is identified, and/or no measures are provided.

Analysis & Results	Data is collected using the measures and tools identified. Results are reported with clear description of quality analysis (e.g., analysis follows accepted statistical or qualitative procedures). Results are shared in relation to performance goals. Results are discussed in relation to college, institutional, and/or accreditor goals/standards.	Data is collected using the measures and tools identified. Results are reported with clear description of analysis (e.g., analysis follows accepted statistical or qualitative procedures). Results are shared in relation to performance goals.	Data is collected using the measures and tools identified. Results are reported with little description of analysis.	No data is being collected. No results are provided.
Sharing & Use of Results for Continuous Improvement	Clear information is provided about sharing and using results to inform practice. Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice. A plan for adjusting performance, goals, assessment, and/or program components based on results is outlined.	Clear information is provided about sharing and using results to inform practice. Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.	Limited information is provided about sharing or using results to inform practice. Some discussion of what was learned from results is provided.	No information is provided about sharing or using results to inform practice. No evidence of reflection on results is provided (ex: discussion, conclusions drawn)
Overall Rating	□ **Exemplary**	□ **Mature**	□ **Developing**	□ **Undeveloped**