Student Outcomes Assessment and Success Report AY2019-20   *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 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.11 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course

				will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will improve students' performance this year. Also, the rubric for this assignment was majorly changed based on the feedback we received from our SPA report.
	• Math 391-Lesson Plans (Fall 2019)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.75 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
2. Clearly relates middle or high school mathematics curriculum standards to student learning.	• Math 388-Unit Plan (Spring 2020)	• 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	• Average score of 1.78 and 55.6% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught"

		(i.e. receive a score of 2 or 3).		the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course.
				• Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will improve students' performance this year. Also, the rubric for this assignment was majorly changed based on the feedback we received from our SPA report.
	• Math 391-Lesson Plans (Fall 2019)	• We expect that 80% of our students should accurately relate mathematics	• Average score of 2.75 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of

		curriculum standards either (1) most of the time or (2) all the time throughout a lesson plan (i.e. receive a score of 2 or 3).		Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
3. Uses high-level cognitive demand tasks for rich mathematical learning experiences.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.11 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or

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	• Math 391-Lesson Plans (Fall 2019)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.55 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
4. Incorporates a variety of strategies and differentiated instruction.	• Math 388-Unit Plan (Spring 2020)	• 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	• Average score of 2.11 and 88.9% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally

| | | (i.e. receive a score of 2 or 3). | | they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course.
• Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will improve students' performance this year. Also, the rubric for this assignment was majorly changed based on the feedback we received from our SPA report. |

	• Math 391-Lesson Plan (Fall 2019)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.75 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
5. Uses mathematics-specific materials and instructional technologies.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.33 and 88.9% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught

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6. Provides students with opportunities to communicate about mathematics.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.44 and 88.9% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an

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	• Math 391-Lesson Plans (Fall 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 a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 3.00 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
7. Guides meaningful mathematical discussions.	• Math 388-Unit Plan (Spring 2020)	• 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 the unit plan (i.e. receive a score of 2 or 3).	• Average score of 2.11 and 66.7% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will improve students'

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8. Accurately identifies key mathematical ideas related to middle or high school mathematics.	• Math 388-Unit Plan (Spring 2020)	• We expect that 80% of our students should occasionally provide evidence of accurately identifying key mathematical ideas throughout the unit plan (i.e. receive a score of 2 or 3).	• Average score of 1.89 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable

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	• Math 391-Lesson Plans (Fall 2019)	• We expect that 80% of our students should occasionally provide evidence of accurately identifying key mathematical ideas throughout a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. With such a small size of students, it is difficult to know if this information reflects overall student

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9. Demonstrates the ability to identify and address students' misconceptions.	• Math 388-Unit Plan (Spring 2020)	• We expect that 80% of our students should occasionally provide evidence of identifying and addressing middle school students' misconceptions throughout the unit plan (i.e. receive a score of 2 or 3).	• Average score of 1.89 and 66.7% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will

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	• Math 391-Lesson Plans (Fall 2019)	• We expect that 80% of our students should occasionally provide evidence of identifying and addressing secondary school students' misconceptions throughout a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
10. Uses a range of questioning strategies.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 1.78 and 55.6% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught' the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even

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				reflects overall student trends that should cause a complete course adjustment.
11. Uses appropriate formative assessment to inform instruction.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 1.89 and 66.7% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a

				synchronous class will improve students' performance this year. Also, the rubric for this assignment was majorly changed based on the feedback we received from our SPA report.
	• Math 391-Lesson Plans (Fall 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 a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
12. Uses appropriate summative assessments to inform instruction.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 1.56 and 33.3% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously

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	• Math 391-Lesson Plans (Fall 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 a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. With such a small size of students, it is difficult to

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13. Includes a reflection on appropriate mathematical proficiencies essential for all students.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.11 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment.

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	• Math 391-Lesson Plans (Fall 2019)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students met this expectation.	• We only had four students' data for this report. Dr. Winnie Ko, the instructor of Math 391, recently has incorporated more mathematical tasks and video cases into the course so that students have more opportunities to identify relevant mathematics curriculum standards. 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.
14. Exhibits knowledge of adolescent learning, development, and behavior.	• Math 388-Unit Plan (Spring 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.00 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students

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	• Math 391-Lesson Plans (Fall 2019)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students 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 2020)	• We expect that at least 80% of our students should sometimes demonstrate a positive disposition toward	• Average score of 2.00 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students'

		mathematical processes and learning throughout the unit plan (i.e. receive a score of 2 or 3).		early field experience was interrupted. Then, normally they would have "taught' the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited and received has also changed to better make use of an online environment. We believe that a synchronous class will improve students' performance this year. Also, the rubric for this assignment was majorly changed based on the feedback we received from our SPA report.

	• Math 391-Lesson Plans (Fall 2019)	• We expect that at least 80% of our students should sometimes demonstrate a positive disposition toward mathematical processes and learning throughout a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 3.00 and 100% of 4 students 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 2020)	• We expect that at least 80% of our students should sometimes provide appropriate, sequential, and challenging learning opportunities throughout the unit plan (i.e. receive a score of 2 or 3).	• Average score of 2.11 and 88.9% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught' the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course. • Next semester, this course will once again be taught online and we still do not know if there will be an early field experience or not. However, the course will be synchronous and the students will give video presentations and expected to have reliable internet connections. The way feedback will be solicited

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	• Math 391-Lesson Plans (Fall 2019)	• We expect that at least 80% of our students should sometimes provide appropriate, sequential, and challenging learning opportunities throughout a lesson plan (i.e. receive a score of 2 or 3).	• Average score of 2.50 and 100% of 4 students 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 2020)	• 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 (i.e. receive a score of 2 or 3).	• Average score of 2.44 and 77.8% of 9 students met this expectation.	• This class was majorly impacted by the pandemic and transition to online education. The students' early field experience was interrupted. Then, normally they would have "taught" the opening lesson of this assignment and received in-person feedback immediately after they taught the lesson. They also would have observed all of their classmates opening lesson. Due to the sudden switch, and the students inability to synchronously attend the class (or even have access to reliable internet) this was not easily translatable to an asynchronous online course.

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18. 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 2020)	• We expect that all of our students should demonstrate understanding of major concepts of algebraic notation, symbols, expression, equations, and inequalities, with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.60 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
19. Accurately uses algebraic notation and symbols to solve equations and inequalities.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2020)	• We expect that all of our students should is able to apply some understandings of major concepts of algebraic notation, symbols, expression, equations, and inequalities with at least	• Average score of 2.60 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the

		80% accuracy (i.e. receive a score of 2 or 3).		domains of Algebra, Calculus, Geometry, and Trigonometry.
20. Accurately simplifies and manipulates rational expressions.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2020)	• We expect that all of our students should simplify and manipulate rational expressions with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.60 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
21. Accurately uses properties of linear functions, inequalities, systems of linear equations.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2020)	• We expect that all of our students should use properties of linear functions, inequalities, systems of linear equations with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.60 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
22. Accurately identifies behaviors of nonlinear functions and relationships between their various representations.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2020)	• We expect that all of our students should correctly identify behaviors of nonlinear functions and relationships between their various representations with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.60 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
23. Accurately uses properties of right triangles.	• Math 402-Content Knowledge for Teaching Secondary School Mathematics Assessment (Spring 2020)	• We expect that all of our students should correctly use properties of right triangles with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.40 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students'

				content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
24. 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 2020)	• We expect that all of our students should correctly use properties of limits and continuity and identifies their relationships with graphs of functions with at least 80% accuracy (i.e. receive a score of 2 or 3).	• Average score of 2.40 and 100% of 5 students met this expectation.	• We have created and implemented one new course, "Math 408: High School Mathematics from an Advanced Perspective" aimed at deepening and strengthening our students' content knowledge in the domains of Algebra, Calculus, Geometry, and Trigonometry.
25. Successfully passes the licensure exam.	• Indiana CORE Assessment for Educator Licensure Field 035 Mathematics (Spring 2020)	• We expect that at least 80% of our students should successfully pass the licensure exam with a score of at least 220.	• Average score of 217.4 and 80% of 5 student met this expectation.	• 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.
   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

Cohort Total with Year-to-Year Retention

	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020
Cohort Total (n)	7	10	9	6	15	6	8	4
Cohort Retention (%)	85.71	70	88.89	83.33	86.67	66.67	75	N/A

Cohort-Total with 5-Year Graduation Rate

	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Cohort Total (n)	7	8	7	10	9
Cohort Graduation (%)	42.86	12.50	57.14	40.00	66.67

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 2019 semester and in Math 402 during the spring 2020 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. As the NCTM recently posted the new CAEP standards (https://www.nctm.org/uploadedFiles/Standards_and_Positions/NCTM%20Standards%202020%20-%20Middle%20Level.pdf), mathematics education faculty members will revise the learning outcomes depicted in Part 1a. As the results seen in Part 1a, most of mathematics teaching majors enrolled in Math 388 during the spring 2020 semester were majorly impacted by the pandemic and transition to online education. The same students enrolled in Math 391 this semester have face-to-face instruction, and six of them who have submitted their first draft lesson plan before doing their first in-class teaching have demonstrated significantly improvement in the categories of 1-17 shown in Part 1a.

While we had four students who successfully passed Math 391 in Fall 2019, we had five students do their student teaching in Spring 2020 because one completed Math 391 in Fall 2018. Thus, we had five students who completed the program in Spring 2020. As seen in Part 1(a), only four of the five students successfully passed the Indiana licensure 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, we have found that some of mathematics teaching majors seem to have difficulty connecting their mathematical knowledge within and across mathematical content domains. To better prepare mathematics teaching majors to 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 that these changes can help 100% of our students who completed the program successfully pass the licensure exam in the near future.

Finally, three of mathematics teaching majors had given a presentation with Dr. Winnie Ko at the 2019 Indiana Council of Teachers of Mathematics. This was a great experience for them to go through the process of writing a conference proposal, as well as preparing and giving a presentation for pre-service and in-service

mathematics teachers and mathematics educators who attended the 2019 ICTM conference. This was also a great opportunity for these mathematics teaching majors to receive feedback from people attending to their session to develop their presentation skills.

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 mathematics teaching majors to have relevant knowledge prior to taking "Math 410: Introduction to Analysis" in the past, the majority of our mathematics teaching majors had considerable difficulty with Math 410. To keep mathematics teaching majors in the program and to help them make sense of analysis, we have developed and implemented a new course titled "Math 310: Elementary Analysis" in Fall 2019. We hope that this transition course can better support mathematics teaching majors' learning and understanding of the concepts related to analysis. In addition, some of mathematics teaching majors have reported that they have difficulty understanding the concepts covered by "Math 412: Abstract Algebra" when first time seeing and learning related mathematical ideas. To help mathematics teaching majors develop a better understanding of abstract algebra and make connections between abstract algebra and middle school mathematics, we have included some abstract algebra concepts in the course titled "Math 308: Middle School Mathematics from an Advanced Perspective." We hope this new change can help mathematics teaching majors see abstract algebra has been used in middle school mathematics and have background knowledge prior to taking Math 412.

Currently, the majority of mathematics teaching majors are mathematics coaches for the math lab where is the place for undergraduate students who are taking Math 035, Math 102, Math 105, 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.

In addition, more mathematics teaching majors are in the process of preparing conference proposals with Dr. Winnie Ko for the 2021 Indiana Council of Teachers of Mathematics. These are valuable experiences for mathematics teaching majors to think about what topics related middle or high school mathematics they would like to share with people attending their sessions, as well as what activities they would like to develop so that participants are actively engaged in doing mathematics during their sessions. 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 successfully completed Math 131 and Math 132 are strongly encouraged to become a mathematics coach for the math lab to help undergraduate students with Math 035, Math 102, Math 105, Math 115, Math 131, Math 132, and Math 241. Being a mathematics coach provides a great opportunity for a mathematics teaching major not only to interact with undergraduate students and demonstrate and apply his/her 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 for mathematics teaching major to develop their critical thinking skills by solving problems on their own, promote their communication skills by explaining mathematical ideas to small groups and the whole class, and collaboratively work with peers in small groups, and help them recognize the value of different thought processes when sharing mathematical reasoning. In addition, mathematics teaching majors enrolled in Math 391 have opportunities to write a detailed lesson plan, to solve a mathematics problem using multiple ways, and to provide written feedback on secondary school students' mathematical work. These practices would be helpful for mathematics teaching majors to prepare their assigned lessons, anticipate secondary school students' questions/answers/thinking, and provide constructive comments to support secondary school students' learning of mathematics for their future teaching.

Regarding our assessment plan for the 2020-2021 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 our mathematics teaching majors' performance in their student teaching. These survey responses would help us see if our mathematics teaching majors are prepared with sufficient content knowledge and pedagogical knowledge for teaching mathematics at the secondary school level. We are also planning to revise our learning outcomes and rubrics that will be aligned with the new NCTM CAEP standards. At mathematics education curriculum meetings, we will share our online survey questions, new learning outcomes, and new rubrics. We will also discuss what other types of assessment data we would like to collect from our mathematics education courses. In addition, results of all the assessments that we collect and analyze for our program annual assessment report will be 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.

Thank you so much for sharing your assessment process and findings for AY 2019-20 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 practice and use 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: Exemplary (3.00/3.00)
Strengths	Recommendations
- Learning outcomes are clear, specific, and measureable. - Aligned measures of learning allow students to demonstrate proficiency through professionally-relevant activities. - Expectations for student performance are clearly defined and appropriate. - Rubrics are used to evaluate student learning on measures, and data is presented in terms of average score and number of students meeting or exceeding expectations. - Clear information is provided about the findings, including detailed information on the likely influence of Spring 2020 changes due to coronavirus, particularly on teaching placements. - Thoughtful analysis of strategies that are working to improve student learning. - Faculty collaborate on assessment and share findings.	

Evaluation Criteria	3 Exemplary	2 Mature	1 Developing	0 Undeveloped
Student Learning Outcomes	Identified, aligned learning outcomes are specific, measurable, student-centered, and program-level. Outcomes directly integrate institution or college-level learning goals. Outcomes are consistent across modes of delivery (if applicable). More than one outcome is assessed this cycle, and rationale is provided for why they were selected for assessment.	Identified, aligned learning outcomes are specific, measurable, student-centered, and program-level. Outcomes support institution or college-level learning goals. Outcomes are consistent across modes of delivery (if applicable). At least one outcome is assessed this cycle, and rationale is provided for why it was selected for assessment.	Learning outcomes are identified and alignment with courses is demonstrated. Outcomes are consistent across modes of delivery (if applicable). At least one outcomes is assessed this cycle.	No *(program)* learning outcomes are identified, and/or alignment of learning outcomes to courses is not demonstrated (e.g. – curriculum map).
Performance Goals & Measures	Performance goals are clear and appropriate, and rationale is provided for why these were selected. Identified measures and tools are assigned to each outcome, are clear and intentionally designed to address student performance on aligned outcomes, and rationale and examples are provided (e.g. – rubrics, checklists, exam keys). Most are direct measures, and their design enhances the validity of findings. Licensure exams and high-impact practices are reflected in measures (if applicable).	Performance goals are clear and appropriate. Identified measures and tools are assigned to each outcome, are clear and intentionally designed to address student performance on aligned outcomes, and examples are provided (e.g. – rubrics, checklists, exam keys). At least one direct measure is included.	Performance goals are identified with little rationale or clarity. Identified measures are poorly suited to performance goals, underdeveloped, or are solely indirect measures.	No goals for student performance of learning outcomes are identified, and/or no measures are provided.

Analysis & Results	Data collection process is clear and designed to produce valid/trustworthy results. The process is useful to those collecting and/or interpreting data. Data is collected and analyzed with clear rationale and description. Results are provided with thoughtful discussion of analysis and description of conclusions that can be drawn.	Data collection process is clear and designed to produce valid/trustworthy results. Data is collected and analyzed with clear rationale and description. Results are provided with some discussion of analysis.	Description of data collection is unclear as to process and quality. Some data is collected and analyzed with little rationale or description. Some results are provided with no discussion of analysis.	No information is provided about the data collection process, and/or no data is being collected. No results are provided
Sharing & Use of Results for Continuous Improvement	A plan for sharing information and included program faculty and appropriate staff in discussion and planning is detailed and enacted. Outcomes and results are easily accessible on the program website or other appropriate designated area. Plans for improvement or change based on results are clear and connected to results. If few students met performance goals, this is included in discussion and plans. Reflection if offered about results or plans moving forward, and compares prior year plans to current outcomes in an effort to foster continuous improvement as a result of assessment process.	A plan for sharing information broadly across program faculty is detailed and enacted. Plans for improvement or change based on results are clear and connected to results. If few students met performance goals, this is included in discussion and plans. Reflection is offered about results or plans moving forward.	Information is provided about sharing results, but sharing is limited in scope or content. Plans for improvement or change based on results are incomplete, vague, or not clearly connected to results. Little reflection is offered about results or plans moving forward.	No information is provided about sharing results and/or plans for improvement or change based on results. No evidence of reflection on results in provided.
Overall Rating	**□ Exemplary**	□ **Mature**	□ **Developing**	□ **Undeveloped**

Please see reviewer notes for more details.