**Student Outcomes Assessment and Success Report AY2017-18** ***Completed reports due from the dean to the Assessment Office via Blackboard by October 15. Deans, assessment coordinators, and/or department chairs set their own internal deadlines for material review and request for refinement if not suitably addressing questions.***

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

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

**Part 1a: Summary of Assessment Activities**

| **a. What learning outcomes did you assess this past year?**<br><br>**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?** |
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| 1. Apply knowledge of curriculum standards for middle or high school mathematics and their relationship to student learning within and across mathematical domains. | Math 388-The Teaching of Middle School Mathematics: Students must complete a unit plan, and this is one of the items on the rubric for this assignment.<br><br>Math 391-The Teaching of High School Mathematics: Students must complete two lesson plans, and this is one of the items on the rubric for these assignments. | All mathematics teaching majors who passed Math 388 must meet or exceed expectations on this criterion.<br><br>All mathematics teaching majors who passed Math 391 must meet or exceed expectations on this criterion. | Every mathematics teaching major enrolled in Math 388 ($n$=12) during the spring 2018 semester met or exceeded expectations on this criterion.<br><br>Every mathematics teaching major enrolled in Math 391 ($n$=3) during the fall 2017 semester met or exceeded expectations on this criterion. | No changes or improvements were made on Math 388 unit plan assignment.<br><br>No changes or improvements on Math 391 lesson plan assignments. |
| 2. Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations, and mathematics-specific and instructional technologies in building all middle or high students' conceptual understanding and procedural proficiency. | Math 388-The Teaching of Middle School Mathematics: Students must complete a unit plan, and this is one of the items on the rubric for this assignment.<br><br>Math 391-The Teaching of High School Mathematics: Students must complete two lesson plans, and this is one of the items on the rubric for these assignments. | Our goal is to have all mathematics teaching majors who passed Math 388 to meet or exceed expectations on each piece of this criterion.<br><br>Our goal is to have all mathematics teaching majors who passed Math 391 to meet or exceed expectations on each piece of this criterion. | All mathematics teaching majors enrolled in Math 388 during the spring 2018 semester ($n$=12) met or exceeded expectations on most of the pieces of this criterion. However, 10% of the students struggled with differentiating instruction for diverse populations.<br><br>All mathematics teaching majors enrolled in Math 391 during the fall 2017 semester ($n$=3) met or exceeded expectations on this criterion. | No changes or improvements were made on Math 388 unit plan assignment.<br><br>No changes or improvements on Math 391 lesson plan assignments. |

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| 3. Provide middle school students with opportunities to communicate about mathematics and make connections among mathematics, other content areas, everyday life, and the workplace. | Math 388-The Teaching of Middle School Mathematics: Students must teach a unit during their early filed experience (CIMT 301/302), and this is part of the criteria classroom observers are analyzing. | All mathematics teaching majors enrolled in Math 388 would meet expectations on this criterion. | One mathematics teaching major enrolled in Math 388 during the spring 2018 semester was unable to complete his early field experience due to registration issues. He is completing this requirement in the 2018-2019 academic year. The rest of the mathematics teaching majors enrolled in Math 388 ($n$=11) during the spring 2018 semester met or exceeded expectations on this criterion. | No changes or improvements were made on Math 388 classroom observation during students' early filed experience. |
| 4. Implement techniques related to student engagement and communication including selecting high quality tasks, guiding mathematical discussions, identifying key mathematical ideas, identifying and addressing student misconceptions, and employing a range of questioning strategies. | Math 388-The Teaching of Middle School Mathematics: Students must complete a unit plan, and this is one of the items on the rubric for this assignment.<br><br>Math 391-The Teaching of High School Mathematics: Students must complete two lesson plans and teach these two lessons in class, and this is one of the items on the rubric for these assignments. | All mathematics teaching majors enrolled in Math 388 would meet expectations on this criterion.<br><br>All mathematics teaching majors enrolled in Math 391 would meet expectations on this criterion. | All mathematics teaching majors enrolled in Math 388 during the spring 2018 semester ($n$=12) met or exceeded expectations on most of the pieces of this criterion. However, only 50% of the students met the range of questioning strategies. 90% of students met or exceeded the student misconceptions piece.<br><br>All mathematics teaching majors enrolled in Math 391 during the fall 2017 semester ($n$=3) met or exceeded expectations on this criterion. | No changes or improvements were made on Math 388 unit plan assignment.<br><br>No changes or improvements on Math 391 lesson plan assignments. |
| 5. Exhibit knowledge of pre-adolescent and adolescent learning, development, and behavior and demonstrate a positive disposition toward mathematical processes and learning. | Math 388-The Teaching of Middle School Mathematics: Students must complete a unit plan, and this is one of the items on the rubric for this assignment.<br><br>Math 391-The Teaching of High School Mathematics: Students must complete two lesson plans and teach these two lessons in class, and this is one of the items on the rubric for these assignments. | All mathematics teaching majors enrolled in Math 388 would meet expectations on this criterion.<br><br>All mathematics teaching majors enrolled in Math 391 would meet expectations on this criterion. | 90% of mathematics teaching majors enrolled in Math 388 during the spring 2018 semester ($n$=12) met or exceeded expectations on this criterion.<br><br>All mathematics teaching majors enrolled in Math 391 during the fall 2017 semester ($n$=3) met or exceeded expectations on this criterion. | No changes or improvements were made on Math 388 unit plan assignment.<br><br>No changes or improvements on Math 391 lesson plan assignments. |
| 6. Demonstrate and apply content knowledge of mathematics and pedagogical knowledge of mathematics teaching within and | Math 402-Teaching an Integrated Unit: Students must complete our developed assessment with a focus on mathematics and | Our goal is to have all mathematics teaching majors who passed all the required mathematics and professional | All mathematics teaching majors enrolled in Math 402 during the spring 2018 semester ($n$=3) met | No changes or improvements were made on Math 402 assessment. |

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| among mathematical content domains. | mathematics teaching at the middle and high school level during their student teaching. | education courses to meet or exceed expectations on this criterion. | or exceeded expectations on this criterion. | |

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.*

Notes

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

## Part 1b: Continuous Quality Improvement

**In no more than one page, summarize 1) the discoveries assessment has enabled you to make about student learning (a. What specifically do students know and do well—and less well? b. What evidence can you provide that learning is improving?); 2) what your assessment plan will focus on in the coming year; and 3) how will this information be shared with other stakeholders?**

Based on the results from Part 1a, it is clear that all mathematics teaching majors enrolled in Math 391 during the fall 2017 semester and in Math 388 during the spring 2018 semester met or exceed expectations on the following areas: (1) apply knowledge of curriculum standards for mathematics and their relationship to student learning within and across mathematical domains; (2) plan lessons and units that incorporate a variety of instructional strategies; (3) provide students with opportunities to do mathematics; and (4) demonstrate and apply content knowledge of mathematics and pedagogical knowledge of mathematics teaching within and among mathematical content domains. As the results shown in Part 1a, several of the mathematics teaching majors seemed to have difficulty (1) employing a range of questioning strategies; (2) exhibiting knowledge of pre-adolescent and adolescent learning, development, and behavior; and (3) demonstrating a positive disposition toward mathematical processes and learning when enrolled in Math 388 in the spring 2018 semester. Those mathematics teaching majors who enrolled in Math 388 during the spring g 2018 semester are currently taking Math 391. The students are provided with multiple opportunities to learn different types of questions, questioning strategies, pre-adolescent and adolescent learning, development, and behavior, and a positive disposition toward mathematical processes and learning by reading mathematics teaching oriented articles, watching published real high school mathematics classroom videos, and teaching lessons in class. By reading 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.

Regarding our assessment plan for the 2018-2019 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. In the future mathematics education curriculum meetings, we will discuss with the mathematics education program faculty members about what other types of assessment data we would like to collect from our mathematics education courses. Results of assessment activities will be also shared with the mathematics education program faculty members in the future mathematics education curriculum meetings.

## Part 2a: Summary of Student Success Activities

Based on the results of your assessment of student learning outcomes from Part 1 above, reflect on how this data will impact student success within your unit/program.

| **a. What goals/objectives were established this past year to aid student performance, retention, persistence, and completion?** | **b. What primary action steps were taken to make progress on each goal and who was responsible?** | **c. What data informs progress on each goal?** | **d. What were some accomplishments or achievements for each goal and/or challenges confronted?** | **e. Please indicate goals that are continuing and any goals that will replace a previous goal. Any additional goals can also be added on a new line.** |
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| 1. Meet with mathematics teaching majors regularly | Each of the mathematics education academic advisors meets with her advisees regularly and sees if her advisees are doing ok. | All three mathematics teaching majors enrolled in Math 402 during the spring 2018 semester graduated in May 2018. This result shows that mathematics education academic advisors hold their advisees accountable. | One challenge mathematics education academic advisors face is that several of mathematics teaching majors never reply their advisors' emails. In particular, those who do not respond to their advisors' emails are the ones who did not receive good interim grades. | All mathematics education academic advisors will continue to meet with their advisees regularly and see if they need any support or have any questions. |
| 2. Encourage mathematics teaching majors become student assistants (SA) for mathematics courses (Math 015, Math 035, Math 115, Math 131, and Math 132) | Each of the mathematics education academic advisors sends her recommended mathematics teaching majors being a SA to the SA program coordinator. Being a SA is very beneficial to mathematics teaching majors to have experience teaching mathematics, asking different types of questions, and answering questions. | Based on informal conversations with mathematics teaching majors who are current SAs, they really appreciate this opportunity to interact with students, employ questioning strategies, use multiple ways to solve mathematics problems, and answer students' mathematics-related questions before becoming an in-service middle or high school mathematics teacher. | Overall, the current SAs who are mathematics teaching majors are doing fine with their assigned sections. | All mathematics education academic advisors will continue to encourage their advisees to consider being an SA for a mathematics course. |
| 3. Prepare resumes and cover letters practice job interviews | 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. | Mathematics teaching majors' draft resumes and cover letters showed their understanding of the format of teaching job applications. Mathematics teaching majors' comments on their peers' resumes and cover letters demonstrated their | All the mathematics teaching majors who completed the program got a mathematics teaching job. | Mathematics teaching majors enrolled in Math 391 will continue to have an opportunity to learn how to draft their resume and cover letter, to leave comments on their peers' resumes and cover |

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| | | ability to make their peers' materials better. Mathematics teaching majors' responses to possible job interview questions showed their ability to organize their thoughts logically. | | letters, and to practice job interview questions. |

Notes

a. These goals could be program/department wide but may also be focused on specific sub-populations of interest (e.g., service course student performance, transfer students, part-time students, students of a particular class year, students of color, etc.).

c. Retention and completion data, D/F/drop rates, credit hour productivity (defined as credit hour enrollment at start of term versus credit hours earned at end of term) are common data examples. See Blue Reports database (access from Linda Ferguson in Institutional Research) or the Office of Institutional Research for ideas.

## Part 2b: Continuous Quality Improvement

**In no more than one page, summarize 1) the discoveries that attention to student performance, retention, persistence, and completion has enabled you to make about program/department systems, processes, and norms as it effects students; and 2) how this will positively impact student success, including with regard to the readiness of students for graduate study or a career?**

Each of the mathematics education academic advisors meets with her advisees regularly and sees if her advisees are doing ok. This way really helps mathematics teaching majors to get support from their advisors and to keep their academic performance and their completion of the program. All mathematics teaching majors who completed Math 131 and Math 132 are encouraged to become a SA for mathematics courses, such as Math 015, Math 035, Math 115, Math 131, and Math 132. Being a SA for a mathematics course provides a great opportunity for mathematics teaching majors not only to interact with students and demonstrate and apply their knowledge of mathematics, but also to learn how to become an effective mathematics teacher in the future. Finally, 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.

*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 2017-18 with the Assessment and Student Success Councils. You will find a comprehensive synthesis of the feedback compiled by both groups below. It is understood that some of the feedback might encompass practices that you already engage in but that are 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)

<table>
<tr><th colspan="2">Program: Math Teaching</th></tr>
<tr><td colspan="2">Assessment Practice Overall Rating: Developing (1.75/3.00)<br>Student Success Practice Overall Rating (notes below in blue): Mature (2.25/3.00)</td></tr>
<tr><th>Strengths</th><th>Recommendations</th></tr>
<tr><td><ul><li>Clearly defined learning outcomes.</li><li>Good use of a variety of assessments in different classes at different points of the curriculum to see how student learning is progressing and applied.</li><li>Clear information provided about the expectations for student performance and actual performance data shared in relation to these expectations.</li><li>Good discussion of the results and areas for potential student performance improvement.</li><li>Good information about assessment plan for the next academic year and how faculty are informed and participate.</li><li>Strong focus on progress toward degree and career readiness.</li></ul></td><td><ul><li>Learning outcomes are highly compound (multiple demonstrations of learning necessary for each outcome), making them harder to measure accurately. Keep this in mind for future outcomes revisions, or for ensuring that assessments of learning are complex enough to evaluate student learning of the whole outcome.</li><li>Consider describing and/or including the rubric or the classroom observation guidelines for feedback in the future to enhance quality of collected data. I can infer from the information provided in Part 1a, column b that an analytical rubric containing several of the learning outcomes as elements was used for the unit plan and lesson plan assignments, but I don't know for sure enough to give any feedback.</li><li>Consider providing more information about changes that were made as a result of findings. I am unsure from the narrative in Part 1b whether the students taking Math 388 in Spring 18 experienced instructional strategies that were a result of these findings or of earlier findings.</li></ul></td></tr>
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*Assessment (Parts 1a & 1b) Scoring Rubric is included below. Student Success (Parts 2a & 2b) Scoring Rubric is included below with no notations just for your reference (the SSC did not choose to report in this way).*

*Score was calculated on a 0 (undeveloped), 1 (developing), 2 (mature), 3 (exemplary) scale.*

**Student Outcomes Assessment & Success Report Rubric**
**Office of Assessment & Accreditation, Indiana State University**

**Unit/Program: Math Teaching**
**Evaluation Date: Fall 2018**

| Evaluation Criteria | Exemplary | Mature | Developing | Undeveloped |
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| **Student Learning Outcomes** | At least one learning outcome that is aligned with program coursework is assessed this cycle.<br><br>Learning outcome(s) is specific, measureable, and student-centered.<br><br>Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)<br><br>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.<br><br>Learning outcome(s) is specific, measureable, and student-centered.<br><br>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.<br><br>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.).<br><br>Identified measures are designed to accurately reflect student learning, including at least one direct measure.<br><br>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.).<br><br>Identified measures are designed to accurately reflect student learning, including at least one direct measure.<br><br>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.<br><br>Identified measures (ex: assignments, projects, tests, etc.) are poorly suited to performance goals or are solely indirect measures.<br><br>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. |

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

**Student Success Activities Report Rubric** (Part 2 of Student Outcomes Assessment Report)**Unit/Program:**
**Office of Student Success/Office of Assessment & Accreditation Evaluation Date:**

| Evaluation Criteria | 0<br>Undeveloped | 1<br>Developing | 2<br>Mature | 3<br>Exemplary |
|---|---|---|---|---|
| **Goals/ Objectives** | No goals/objectives are identified. | Goals/objectives are poorly suited to addressing student performance, retention, persistence, and/or completion.<br><br>Goals/objectives may also be modest at best such that little effort is required. | Goals/objectives are generally clear and reasonably well suited to addressing student performance, retention, persistence, and/or completion.<br><br>Goals/objectives are also generally at least moderately aggressive such that appropriate effort is required. | Goals/objectives are all clear and well suited to addressing student performance, retention, persistence, and/or completion.<br><br>Goals/objectives are also at least moderately aggressive in all cases such that appropriate effort is required. |
| **Action Steps** | No action steps are identified. | Action steps are weak, underdeveloped, and/or poorly suited to making progress on goals/objectives.<br><br>No person(s) or group(s) indicated who will be responsible for the actions. | Action steps are generally clear and reasonably well suited to making progress on goals/objectives.<br><br>Person(s) or group(s) responsible for the actions are indicated in most cases. | Action steps are all clear and well suited to making progress on goals/objectives<br><br>Person(s) or group(s) responsible for each action are indicated, ideally with a timeline. |
| **Data that Informs Progress on Each Goal/Objective** | No data, quantitative or qualitative, is identified. | Data to inform progress are poorly suited to measure progress on goals/objectives. | Data to inform progress are generally well suited to measure progress on goals/objectives. | Data to inform progress are all well suited to measure progress on goals/objectives. |
| **Assessment of Outcomes and Continuous Improvement** | For goals/objectives in place the prior year, no reflection provided on achievements/challenges, sharing results, and/or plans for improvement or change based on results.<br>No reflection on outcome assessment plan for continuous improvement provided for new goals/objectives. | For goals/objectives in place the prior year, modest at best reflection provided (and/or is vague or of questionable connection to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results.<br><br>Modest at best reflection on assessment plan for continuous improvement provided for new goals/objectives. | For goals/objectives in place the prior year, generally appropriate reflection provided (and is reasonably well connected to results) on achievements/ challenges, sharing results, and/or plans for improvement or change based on results.<br><br>Reasonable reflection on assessment plan for continuous improvement provided for new goals/objectives. | For goals/objectives in place the prior year, strong reflection is provided in all cases (and is well connected to results) on achievements/challenges, sharing results, and/or plans for improvement or change based on results.<br><br>Well-developed reflection on assessment plan for continuous improvement provided for new goals/objectives. |
| **Overall Rating** | □ **Undeveloped** | □ **Developing** | □ **Mature** | □ **Exemplary** |