Program Outcomes Assessment

BA/BS in Mathematics Teaching

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General Information (Program Outcomes Assessment)

File Attachments:

1. **Mathematics Education** (See appendix)
   Mathematics Education Assessment Strategy

Standing Requirements

Mission Statement

Outcomes Library

BA/BS in Mathematics Teaching Outcome Set - Oct. 2014

BA/BS in Mathematics Teaching Outcome Set - Oct. 2014

Outcome	Mapping
Outcome 1: Content Knowledge Effective teachers of secondary mathematics demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, connections, and applications within and among mathematical content domains.	No Mapping
Outcome 2: Mathematical Practices Effective teachers of secondary mathematics solve problems, represent mathematical ideas, reason, prove, use mathematical models, attend to precision, identify elements of structure, generalize, engage in mathematical communication, and make connections as essential mathematical practices. They understand that these practices intersect with mathematical content and that understanding relies on the ability to demonstrate these practices within and among mathematical domains and in their teaching.	No Mapping
Outcome 3: Content Pedagogy Effective teachers of secondary mathematics apply knowledge of curriculum standards for mathematics and their relationship to student learning within and across mathematical domains. They incorporate research-based mathematical experiences and include multiple instructional strategies and mathematics-specific technological tools in their teaching to develop all students' mathematical understanding and proficiency. They provide students with opportunities to do mathematics – talking about it and connecting it to both theoretical and real-world contexts. They plan, select, implement, interpret, and use formative and summative assessments for monitoring student learning, measuring student mathematical understanding, and informing practice.	No Mapping
Outcome 4: Mathematical Learning Environment Effective teachers of secondary mathematics exhibit knowledge of adolescent learning, development, and behavior. They use this knowledge to plan and create sequential learning opportunities grounded in mathematics education research where students are actively engaged in the mathematics they are learning and building from prior knowledge and skills. They demonstrate a positive disposition toward mathematical practices and learning, include culturally relevant perspectives in teaching, and demonstrate equitable and ethical treatment of and high expectations for all students. They use instructional tools such as manipulatives, digital tools, and virtual resources to enhance learning while recognizing the possible limitations of such tools.	No Mapping
Outcome 5: Impact on Student Learning	No Mapping

Effective teachers of secondary mathematics provide evidence demonstrating that as a result of their instruction, secondary students' conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and application of major mathematics concepts in varied contexts have increased. These teachers support the continual development of a productive disposition toward mathematics. They show that new student mathematical knowledge has been created as a consequence of their ability to engage students in mathematical experiences that are developmentally appropriate, require active engagement, and include mathematics-specific technology in building new knowledge.

Outcome 6: Professional Knowledge and Skills

No Mapping

Effective teachers of secondary mathematics are lifelong learners and recognize that learning is often collaborative. They participate in professional development experiences specific to mathematics and mathematics education, draw upon mathematics education research to inform practice, continuously reflect on their practice, and utilize resources from professional mathematics organizations.

Outcome 7: Secondary Mathematics Field Experiences and Clinical Practice

No Mapping

Effective teachers of secondary mathematics engage in a planned sequence of field experiences and clinical practice under the supervision of experienced and highly qualified mathematics teachers. They develop a broad experiential base of knowledge, skills, effective approaches to mathematics teaching and learning, and professional behaviors across both middle and high school settings that involve a diverse range and varied groupings of students. Candidates experience a full-time student teaching/internship in secondary mathematics directed by university or college faculty with secondary mathematics teaching experience or equivalent knowledge base.

Outcome 8: Number and Quantity

No Mapping

To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the topics related to number and quantity with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.

Outcome 9: Algebra

No Mapping

To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the topics related to algebra with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:

Outcome 10: Geometry and Trigonometry

No Mapping

To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the topics related to geometry and trigonometry with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.

Outcome 11: Statistics and Probability

No Mapping

To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the topics related to statistics and probability with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.

Outcome 12: Calculus

No Mapping

To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the topics related to calculus with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.

Outcome 13: Discrete Mathematics

No Mapping

To be prepared to develop student mathematical proficiency, all

secondary mathematics teachers should know the topics related to discrete mathematics with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models.

BA/BS in Mathematics Teaching Outcome Set - Old

Mathematics Preparation for All Mathematics Teacher Candidates

Outcome	Mapping
1. Knowledge of Problem Solving Candidates know, understand and apply the process of mathematical problem solving.	No Mapping
2. Knowledge of Reasoning and Proof Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry.	No Mapping
3. Knowledge of Mathematical Communication Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.	**Foundational Studies:** 10. Express themselves effectively, professionally, and persuasively both orally and in writing.
4. Knowledge of Mathematical Connections Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.	No Mapping
5. Knowledge of Mathematical Representation Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.	No Mapping
6. Knowledge of Technology Candidates embrace technology as an essential tool for teaching and learning mathematics.	No Mapping
7. Dispositions Candidates support a positive disposition toward mathematical processes and mathematical learning.	No Mapping
8. Knowledge of Mathematics Pedagogy Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.	No Mapping
9. Knowledge of Number and Operations Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.	No Mapping
10. Knowledge of Different Perspectives on Algebra Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.	No Mapping
11. Knowledge of Geometries Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.	No Mapping
12. Knowledge of Calculus Candidates demonstrate a conceptual understanding of limit,	No Mapping

continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.	
13. Knowledge of Discrete Mathematics Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.	No Mapping
14. Knowledge of Data Analysis, Statistics and Probability Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.	No Mapping
15. Knowledge of Measurement Candidates apply and use measurement concepts and tools.	No Mapping
16.3 Field-Based Experience Demonstrate the ability to increase students' knowledge of mathematics.	No Mapping

Curriculum Map

There are no curriculum maps

Communication of Outcomes

Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)

Archive

File Attachments:

1. **BA_BS in Mathematics Education - SPA Report September 2011.pdf** (See appendix)
2. **BA_BS_in_Mathematics_Teaching_Response_Sep2013.pdf** (See appendix)

2012-2013 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**
- **Action Plan**
- **Status Report**

2013-2014 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Mathematics Teaching Outcome Set - Old

Mathematics Preparation for All Mathematics Teacher Candidates

1. Knowledge of Problem Solving

Candidates know, understand and apply the process of mathematical problem solving.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

2. Knowledge of Reasoning and Proof

Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

3. Knowledge of Mathematical Communication

Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

4. Knowledge of Mathematical Connections

Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.

Responsible Individual(s):

5. Knowledge of Mathematical Representation

Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

6. Knowledge of Technology

Candidates embrace technology as an essential tool for teaching and learning mathematics.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation

Target:

Implementation Plan (timeline): At the end of student teaching.

Responsible Individual(s):

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.

Responsible Individual(s):

7. Dispositions

Candidates support a positive disposition toward mathematical processes and mathematical learning.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation
Target:
Implementation Plan (timeline): At the end of student teaching.
Responsible Individual(s):

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.
Responsible Individual(s):

Measure: Unit Report
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.
Responsible Individual(s):

8. Knowledge of Mathematics Pedagogy

Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.
Responsible Individual(s):

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation
Target:
Implementation Plan (timeline): At the end of student teaching.
Responsible Individual(s):

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.
Responsible Individual(s):

Measure: Unit Report
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.

Responsible Individual(s):

9. Knowledge of Number and Operations

Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

10. Knowledge of Different Perspectives on Algebra

Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

11. Knowledge of Geometries

Candidates use spatial visualization and geometric

Measure: GPA in selected mathematics courses
Direct - Other

modeling to explore and analyze geometric shapes, structures, and their properties.

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

12. Knowledge of Calculus

Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

13. Knowledge of Discrete Mathematics

Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

14. Knowledge of Data Analysis, Statistics and Probability

Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

15. Knowledge of Measurement

Candidates apply and use measurement concepts and tools.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

16.3 Field-Based Experience

Demonstrate the ability to increase students' knowledge of mathematics.

Measure: Unit Report
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.

Responsible Individual(s):

Assessment Findings

Finding per Measure

BA/BS in Mathematics Teaching Outcome Set - Old

Mathematics Preparation for All Mathematics Teacher Candidates

1. Knowledge of Problem Solving

Candidates know, understand and apply the process of mathematical problem solving.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

2. Knowledge of Reasoning and Proof

Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

3. Knowledge of Mathematical Communication

Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

4. Knowledge of Mathematical Connections

Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Findings for Course Plan

No Findings Added

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.
Responsible Individual(s):

Findings for Unit Plan

No Findings Added

5. Knowledge of Mathematical Representation

Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades
Target:
Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.
Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam
Target:
Implementation Plan (timeline): During or immediately following student teaching/completion of the program
Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

6. Knowledge of Technology

Candidates embrace technology as an essential tool for teaching and learning mathematics.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Findings for Course Plan

No Findings Added

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation
Target:
Implementation Plan (timeline): At the end of student teaching.
Responsible Individual(s):

Findings for Final Evaluation of Student Teaching

No Findings Added

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades
Target:
Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.
Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.
Responsible Individual(s):

Findings for Unit Plan

No Findings Added

7. Dispositions

Candidates support a positive disposition toward mathematical processes and mathematical learning.

Measure: Course Plan
Direct - Student Artifact

Details/Description: project
Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.
Responsible Individual(s):

Findings for Course Plan

No Findings Added

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation
Target:
Implementation Plan (timeline): At the end of student teaching.
Responsible Individual(s):

Findings for Final Evaluation of Student Teaching

No Findings Added

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.
Responsible Individual(s):

Findings for Unit Plan

No Findings Added

Measure: Unit Report
Direct - Student Artifact

Details/Description: project
Target:
Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.
Responsible Individual(s):

Findings for Unit Report

No Findings Added

8. Knowledge of Mathematics Pedagogy

Candidates possess a deep understanding of how students learn mathematics and of the

Measure: Course Plan
Direct - Student Artifact

Details/Description: project

pedagogical knowledge specific to mathematics teaching and learning.

Target:

Implementation Plan (timeline): During MATH 391, The Teaching of High School Mathematics.

Responsible Individual(s):

Findings for Course Plan

No Findings Added

Measure: Final Evaluation of Student Teaching
Direct - Other

Details/Description: Observation

Target:

Implementation Plan (timeline): At the end of student teaching.

Responsible Individual(s):

Findings for Final Evaluation of Student Teaching

No Findings Added

Measure: Unit Plan
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): During MATH 388, The Teaching of Middle School Mathematics.

Responsible Individual(s):

Findings for Unit Plan

No Findings Added

Measure: Unit Report
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.

Responsible Individual(s):

Findings for Unit Report

No Findings Added

9. Knowledge of Number and Operations

Candidates demonstrate

Measure: GPA in selected mathematics courses
Direct - Other

computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

10. Knowledge of Different Perspectives on Algebra

Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

11. Knowledge of Geometries

Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

12. Knowledge of Calculus

Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

13. Knowledge of Discrete Mathematics

Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

14. Knowledge of Data Analysis, Statistics and Probability

Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion

of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

15. Knowledge of Measurement

Candidates apply and use measurement concepts and tools.

Measure: GPA in selected mathematics courses
Direct - Other

Details/Description: Course grades

Target:

Implementation Plan (timeline): After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.

Responsible Individual(s):

Findings for GPA in selected mathematics courses

No Findings Added

Measure: PRAXIS II
Direct - Exam

Details/Description: State licensure exam

Target:

Implementation Plan (timeline): During or immediately following student teaching/completion of the program

Responsible Individual(s):

Findings for PRAXIS II

No Findings Added

16.3 Field-Based Experience

Demonstrate the ability to increase students' knowledge of mathematics.

Measure: Unit Report
Direct - Student Artifact

Details/Description: project

Target:

Implementation Plan (timeline): At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.

Responsible Individual(s):

Findings for Unit Report

No Findings Added

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Status Report

2014-2015 Assessment Cycle

Assessment Plan

Outcomes and Measures

Assessment Findings

Finding per Measure

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Status Report

2015-2016 Assessment Cycle

- **Assessment Plan**
- **Assessment Findings**
- **Action Plan**
- **Status Report**

2016-2017 Assessment Cycle

Assessment Plan

Assessment Findings

2017-2018 Assessment Cycle

Assessment Plan

Assessment Findings

2018-2019 Assessment Cycle

Assessment Plan

Assessment Findings

2019-2020 Assessment Cycle

Assessment Plan

Assessment Findings

Appendix

A. **Mathematics Education** (Adobe Acrobat Document)
B. **BA_BS_in_Mathematics_Teaching_Response_Sep2013.pdf** (Adobe Acrobat Document)
C. **BA_BS in Mathematics Education - SPA Report September 2011.pdf** (Adobe Acrobat Document)

Program Report for the Preparation of Secondary Mathematics Teachers
National Council of Teachers of Mathematics (NCTM)
Option A

NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

COVER SHEET

1. Institution Name

Indiana State University Bayh College of Education

2. State

Indiana

3. Date submitted

MM DD YYYY

09 / 15 / 2013

4. Report Preparer's Information:

Name of Preparer:
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6. Name of institution's program

Mathematics Education

7. NCATE Category

Mathematics Education

8. Grade levels[1] for which candidates are being prepared

5-12

(1) e.g. 7-12, 9-12

9. Program Type

- (•) First teaching license

10. Degree or award level

- (•) Baccalaureate
- ( ) Post Baccalaureate
- ( ) Master's
- ( ) Post Master's

- ○ Specialist or C.A.S.
- ○ Doctorate
- ○ Endorsement only

11. Is this program offered at more than one site?

- ○ Yes
- ◉ No

12. If your answer is "yes" to above question, list the sites at which the program is offered

13. Title of the state license for which candidates are prepared

14. Program report status:

- ○ Initial Review
- ○ Response to One of the Following Decisions: Further Development Required or Recognition with Probation
- ◉ Response to National Recognition With Conditions

15. Is your unit seeking

- ○ NCATE accreditation for the first time (initial accreditation)
- ◉ Continuing NCATE accreditation

16. State Licensure requirement for national recognition:
NCATE requires 80% of the program completers who have taken the test to pass the applicable state licensure test for the content field, if the state has a testing requirement. Test information and data must be reported in Section IV. Does your state require such a test?

- ◉ Yes
- ○ No

SECTION I - CONTEXT

1. Description of any state or institutional policies that may influence the application of NCTM standards. (Response limited to 4,000 characters INCLUDING SPACES)

2. Description of the field and clinical experiences required for the program, including the number of hours for early field experiences and the number of hours/weeks for student teaching or internships. (Response limited to 8,000 characters INCLUDING SPACES)

Through the BCP program, our candidates receive exceptional early field and clinical experiences. Classes through the Department of Curriculum, Instruction, and Media Technology (CIMT) administer the early field experiences and the clinical/student teaching experiences. These begin in CIMT 301/301, a 6-hour secondary general methods courses, taken in the spring of a candidate's junior year concurrently with MATH 388 The Teaching of Middle School Mathematics. The early field experience in these courses occurs in a middle school setting. Candidates are individually placed in a mathematics classroom under the supervision of an experienced and highly qualified mathematics teacher for approximately 3 weeks, beginning with classroom observations and culminating with the teaching of a short unit. Student must compose and submit a Unit Report, although this report is not formally assessed for the program. We estimate the time spent in their early field experience as approximately 18 hours, with a minimum of 4 hours of instruction (candidate's teaching of their unit) and probably 2-3 hours in tutoring experience.

The second early field experience occurs in CIMT 400/400L, a 4-hour secondary general methods courses taken concurrently with MATH 391 The Teaching of High School Mathematics in the fall of a candidate's senior year. Candidates are individually placed in a high school mathematics classroom under the supervision of an experienced, highly qualified mathematics teacher for a minimum of 6 weeks. The CIMT 400/400L course is blocked with our MATH 391 course to produce a period of 3 hours, during which the candidate's early field experience can occur for a full five days a week, rather than the common "parachuting" in two or three days per week. This early field experience has yielded excellent results, with candidates, host teachers, and high school students able to grow more comfortable with each other. Candidates also gain a better idea of what a teacher's day is like. Also, the co-enrollment of students in CIMT 400/400L and MATH 391 has allowed for the mathematics education faculty teaching the course to observe students in the classroom. We estimate that the total number of hours spent in the classroom is about 90, with a minimum of 8 hours of instructional time when the candidates teach their unit. They have additional instructional experience tutoring or teaching other lessons beyond those in their unit. Students must compose and submit a Unit Report on this experience. If the CIMT instructor deems the report to "exceed expectations" in all areas, it is forwarded to the mathematics education faculty to make a determination. If all agree that it "exceeds expectations," this is the report used for program assessment. If not, then students complete another Unit Report during their student teaching experience.

Student teaching involves a full semester with two separate 8-week placements, totaling 16 weeks. Candidates have an 8-week middle school

placement in a mathematics classroom where they are supervised by a highly qualified mathematics teacher and an 8-week high school placement in a mathematics classroom where they are supervised by a highly qualified mathematics teacher. Each placement typically begins with a week of observation and gradually eased into full-time instructional responsibilities by the host teacher and university supervisor.

3. Please attach files to describe a program of study that outlines the courses and experiences required for candidates to complete the program. The program of study must include course titles. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.)

4. This system will not permit you to include tables or graphics in text fields. Therefore any tables or charts must be attached as files here. The title of the file should clearly indicate the content of the file. Word documents, pdf files, and other commonly used file formats are acceptable.

5. Candidate Information

Directions: Provide three years of data on candidates enrolled in the program and completing the program, beginning with the most recent academic year for which numbers have been tabulated. Report the data separately for the levels/tracks (e.g., baccalaureate, post-baccalaureate, alternate routes, master's, doctorate) being addressed in this report. Data must also be reported separately for programs offered at multiple sites. Update academic years (column 1) as appropriate for your data span. Create additional tables as necessary.

Program:		
Academic Year	**# of Candidates Enrolled in the Program**	**# of Program Completers(2)**

(2) NCATE uses the Title II definition for program completers. Program completers are persons who have met all the requirements of a state-approved teacher preparation program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program's requirements.

6. Faculty Information

Directions: Complete the following information for each faculty member responsible for professional coursework, clinical supervision, or administration in this program.

Faculty Member Name	
Highest Degree, Field, & University(3)	
Assignment: Indicate the role of the faculty member(4)	
Faculty Rank(5)	
Tenure Track	☐ YES
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	
Teaching or other professional experience in P-12 schools(9)	

(3) e.g., PhD in Curriculum & Instruction, University of Nebraska.
(4) e.g., faculty, clinical supervisor, department chair, administrator
(5) e.g., professor, associate professor, assistant professor, adjunct professor, instructor
(6) Scholarship is defined by NCATE as systematic inquiry into the areas related to teaching, learning, and the education of teachers and other school personnel. Scholarship includes traditional research and publication as well as the rigorous and systematic study of pedagogy, and the application of current research findings in new settings. Scholarship further presupposes submission of one's work for professional review and evaluation.
(7) Service includes faculty contributions to college or university activities, schools, communities, and professional associations in ways that are consistent with the institution and unit's mission.
(8) e.g., officer of a state or national association, article published in a specific journal, and an evaluation of a local school program.
(9) Briefly describe the nature of recent experience in P-12 schools (e.g. clinical supervision, inservice training, teaching in a PDS) indicating the discipline and grade level of the assignment(s). List current P-12 licensure or certification(s) held, if any.

SECTION II - LIST OF ASSESSMENTS

In this section, list the 6-8 assessments that are being submitted as evidence for meeting the NCTM standards. All programs must provide a minimum of six assessments. If your state does not require a state licensure test in the content area, you must substitute an assessment that documents candidate attainment of content knowledge in #1 below. For each assessment, indicate the type or form of the assessment and when it is administered in the program.

Type and Number of Assessment	Name of Assessment (10)	Type or Form of Assessment (11)	When the Assessment Is Administered (12)
Assessment #1: Licensure assessment, or other content-based assessment (required)			
Assessment #2: Content knowledge in secondary mathematics education (required)			
Assessment #3: Candidate ability to plan instruction (required)			
Assessment #4: Student teaching (required)			
Assessment #5: Candidate effect on student leaning (required)			
Assessment #6: Additional assessment that addresses NCTM standards (required)			
Assessment #7: Additional assessment that addresses NCTM standards (optional)			
Assessment #8: Additional assessment that addresses NCTM standards (optional)			

(11) Identify assessment by title used in the program; refer to Section IV for further information on appropriate assessment to include.
(12) Identify the type of assessment (e.g., essay, case study, project, comprehensive exam, reflection, state licensure test, portfolio).
(13) Indicate the point in the program when the assessment is administered (e.g., admission to the program, admission to student teaching/internship, required courses [specify course title and numbers], or completion of the program).

SECTION III - RELATIONSHIP OF ASSESSMENT TO STANDARDS

1. For each NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards.

	#1	#2	#3	#4	#5	#6	#7	#8
Mathematics Preparation for All Mathematics Teacher Candidates 1. Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
2. Knowledge of Reasoning and Proof, Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
3. Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
4. Knowledge of Mathematical Connections. Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
5. Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
6. Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☑	☐	☑	☐	☐	☐	☐
7. Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐

8. Knowledge of Mathematics Pedagogy. Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
9. Knowledge of Number and Operations. Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.[Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
10. Knowledge of Different Perspectives on Algebra. Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
11. Knowledge of Geometries. Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
12. Knowledge of Calculus, Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
13. Knowledge of Discrete Mathematics. Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
14. Knowledge of Data Analysis, Statistics and Probability. Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐
15. Knowledge of Measurement. Candidates apply and use measurement concepts and tools. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☐	☐	☐	☐	☐	☐

2. 16.1 Field-based Experience. Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in both middle and secondary mathematics classrooms under the supervision of experienced and highly qualified teachers.

Information should be provided in Section I (Context) to address this standard.

3. 16.2 Field-based Experience. Experienced full-time student teaching secondary-level mathematics that is supervised by experienced and highly qualified teacher and a university or college supervisor with mathematics teaching experience.

Information should be provided in Section I (Context) to address this standard.

4. For the NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards.

	#1	#2	#3	#4	#5	#6	#7	#8
16.3 Field-Based Experience. Demonstrate the ability to increase students' knowledge of mathematics.	☐	☐	☐	☐	☑	☐	☐	☐

SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 6-8 key assessments listed in Section II must be documented and discussed in Section IV. Taken as a whole, the assessments must demonstrate candidate mastery of the SPA standards. The key assessments should be required of all candidates. Assessments and scoring guides and data charts should be aligned with the SPA standards. This means that the concepts in the SPA standards should be apparent in the assessments and in the scoring guides to the same depth, breadth, and specificity as in the SPA standards. Data tables should also be aligned with the SPA standards. The data should be presented, in general, at the same level it is collected. For example, if a rubric collects data on 10 elements [each relating to specific SPA standard(s)], then the data chart should report the data on each of the elements rather that reporting a cumulative score..

In the description of each assessment below, the SPA has identified potential assessments that would be appropriate. Assessments have been organized into the following three areas to be aligned with the elements in NCATE's unit standard 1:
• Content knowledge (Assessments 1 and 2)
• Pedagogical and professional knowledge, skills and dispositions (Assessments 3 and 4)
• Focus on student learning (Assessment 5)

Note that in some disciplines, content knowledge may include or be inextricable from professional knowledge. If this is the case, assessments that combine content and professional knowledge may be considered "content knowledge" assessments for the purpose of this report.

For each assessment, the compiler should prepare one document that includes the following items:

(1) A two-page narrative that includes the following:

a. A brief description of the assessment and its use in the program (one sentence may be sufficient);
b. A description of how this assessment specifically aligns with the standards it is cited for in Section III. Cite SPA standards by number, title, and/or standard wording.
c. A brief analysis of the data findings;
d. An interpretation of how that data provides evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording;
and

(2) Assessment Documentation
e. The assessment tool itself or a rich description of the assessment (often the directions given to candidates);
f. The scoring guide for the assessment; and
g. Charts that provide candidate data derived from the assessment.

The responses for e, f, and g (above) should be limited to the equivalent of five text pages each , however in some cases assessment instruments or scoring guides may go beyond five pages.

Note: As much as possible, combine all of the files for one assessment into a single file. That is, create one file for Assessment #4 that includes the two-page narrative (items a – d above), the assessment itself (item e above), the scoring guide (item f above, and the data chart (item g above). Each attachment should be no larger than 2 mb. Do not include candidate work or syllabi. There is a limit of 20 attachments for the entire report so it is crucial that you combine files as much as possible.

1. State licensure tests or professional examinations of content knowledge. NCTM standards addressed in this entry could include all of the standards 1-7 and 9-15. If your state does not require licensure tests or professional examinations in the content area, data from another assessment must be presented to document candidate attainment of content knowledge. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

2. Assessment of content knowledge in mathematics. NCTM standards addressed in this entry could include but are not limited to Standards 1-7 and 9-15. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks[13]. For post-baccalaureate teacher preparation, include an assessment used to determine that candidates have adequate content backgroud in the subject to be taught.(Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Modified Chart of Courses for Assessment 2

See **Attachment** panel below.

(14) For program review purposes, there are two ways to list a portfolio as an assessment. In some programs a portfolio is considered a single assessment and scoring criteria (usually rubrics) have been developed for the contents of the portfolio as a whole. In this instance, the portfolio would be considered a single assessment. However, in many programs a portfolio is a collection of candidate work—and the artifacts included

3. Assessment that demonstrates candidates can effectively plan classroom-based instruction. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments inculde the evaluation of candidates' abilities to develop leasson or unit plans, individualized educational plans, needs assessments, or intervention plans. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

4. Assessment that demonstrates candidates' knowledge, skills, and dispositions are applied effectively in practice. NCTM standards that could be addressed in this assessment include but are not limited to standard 8. An assessment instrument used in student teaching or an internship should be submitted. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Modified Mathematics Student Teaching Assessment

See **Attachment** panel below.

5. Assessment that demonstrates candidate effects on student learning. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments include those based on student work samples, portfolio tasks, case studies, follow-up studies, and employer surveys. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Modified Unit Report Assessment

See **Attachment** panel below.

6. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

7. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

8. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

SECTION V - USE OF ASSESSMENT RESULTS TO IMPROVE PROGRAM

1. Evidence must be presented in this section that assessment results have been analyzed and have been or will be used to improve candidate performance and strengthen the program. This description should not link improvements to individual assessments but, rather, it should summarize principal findings from the evidence, the faculty's interpretation of those findings, and changes made in (or planned for) the program as a result. Describe the steps program faculty has taken to use information from assessments for improvement of both candidate performance and the program. This information should be organized around (1) content knowledge, (2) professional and pedagogical knowledge, skill, and dispositions, and (3) student learning.

(Response limited to 12,000 characters INCLUDING SPACES)

SECTION VI - FOR REVISED REPORTS OR RESPONSE TO CONDITIONS REPORTS ONLY

1. For Revised Reports: Describe what changes or additions have been made to address the standards that were not met in the original submission. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Revised Report are available on the NCATE web site at http://www.ncate.org/Accreditation/ProgramReview/ProgramReportSubmission/RevisedProgramReports/tabid/453/Default.aspx

For Response to Conditions Reports: Describe what changes or additions have been made to address the conditions cited in the original recognition report. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Response to Conditions Report are available on the NCATE web site at http://www.ncate.org/Accreditation/ProgramReview/ProgramReportSubmission/ResponsetoConditionsReport/tabid/454/Default.aspx

(Response limited to 24,000 characters. INCLUDING SPACES)

According to Section G, reviewers determined that we had not demonstrated that we met the SPA-required number of standards and indicators. The previous reviewers determined that the evidence we provided suggested that our program met the following indicators: 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 10.1, 10.2, 10.3, 10.4, 10.6, 11.1, 11.2, 11.3, 11.5, 11.6, 11.8, 12.1, 12.2, 12.3, 12.5, 13.1, 13.2, 13.4, 14.1, 14.2, 14.3, 14.4, 14.5, 14.7, 14.8, 15.1, 15.2, 15.3, 15.4.

NCTM requires that 80% of the overall indicators as well as at least one indicator from each standard are met in order to receive national recognition. For secondary mathematics programs, this means meeting at least 65 of the indicators. We met 70 indicators. However, we did not demonstrate that we met at least one indicator in Standards 6 and 16. Below, we describe our revised submission that demonstrates that our programs meets at least one indicator in those two standards. We have only included the changes in these items. Everything else is in our original report.

1. Section I, #2 Description of the Field and Clinical Experiences has been modified to explicitly indicate that our candidates have early field experiences and student teaching experiences in secondary mathematics classrooms under the supervision of experienced and highly qualified mathematics teachers. This helps us demonstrate that our program meets indicator 16.1.

2. In an effort to better address indicator 16.3, we have modified the rubric for Assessment 5, the Unit Report, to assess our candidates' ability to increase students' knowledge of mathematics. The changes, suggested by previous reviewers have assisted us in implementing a more nuanced assessment that directly ties to NCTM standards in evaluating the following sections of the Unit Report: Activities of the Unit, Assessment of the Unit, and Effectiveness of the Unit. We have attached the modified rubric along with data gathered from this modified rubric. Since only mathematics education faculty are using this modified rubric, we are only reporting the results from one evaluator for each candidate. Previously, we reported combined data from Bayh College of Education faculty's assessment of our candidate's unit report. We have provided new data from later cohorts on this assessment that indicate our candidates are having a positive impact on the mathematics learning of their students.

3. To address indicator 6.1 (the only indicator for Standard 6), we have modified Assessment 2, the course grades for eleven required courses. We have modified the table in section b, Alignment of NCTM Standards and Indicators by adding a column that explicitly explains how our candidates' mathematics content coursework integrates appropriate technological tools to support candidates' learning of mathematics.
Since our last report, we have modified and fully implemented the Mathematics Student Teaching Evaluation portion of Assessment 4, so that our candidates are evaluated during student teaching with both the general student teaching evaluation form as well as our mathematics-specific rubric. We have provided the data from later cohorts that indicate our candidates are performing adequately on M2 of Assessment 4 which directly addresses indicator 6.1.

Please click "Next"

This is the end of the report. Please click "Next" to proceed.

Program Report for the Preparation of Secondary Mathematics Teachers
National Council of Teachers of Mathematics (NCTM)
Option A

NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

COVER SHEET

1. Institution Name

Indiana State University

2. State

Indiana

3. Date submitted

MM DD YYYY

09 / 15 / 2011

4. Report Preparer's Information:

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6. Name of institution's program

Mathematics Education

7. NCATE Category

Mathematics Education

8. Grade levels(1) for which candidates are being prepared

5-12

(1) e.g. 7-12, 9-12

9. Program Type

- (•) First teaching license

10. Degree or award level

- (•) Baccalaureate
- ( ) Post Baccalaureate
- ( ) Master's

- ○ Post Master's
- ○ Specialist or C.A.S.
- ○ Doctorate
- ○ Endorsement only

11. Is this program offered at more than one site?

- ○ Yes
- ◉ No

12. If your answer is "yes" to above question, list the sites at which the program is offered

13. Title of the state license for which candidates are prepared

Initial License, grades 5-12 Mathematics

14. Program report status:

- ◉ Initial Review
- ○ Response to One of the Following Decisions: Further Development Required or Recognition with Probation
- ○ Response to National Recognition With Conditions

15. Is your unit seeking

- ○ NCATE accreditation for the first time (initial accreditation)
- ◉ Continuing NCATE accreditation

16. State Licensure requirement for national recognition:
NCATE requires 80% of the program completers who have taken the test to pass the applicable state licensure test for the content field, if the state has a testing requirement. Test information and data must be reported in Section III. Does your state require such a test?

- ◉ Yes
- ○ No

SECTION I - CONTEXT

1. Description of any state or institutional policies that may influence the application of NCTM standards. (Response limited to 4,000 characters INCLUDING SPACES)

Prior to this year, mathematics education programs in the state of Indiana were required to submit reports to the state for evaluation. Programs had to meet state standards, which were based on INTASC standards in order to be accredited. Now, mathematics education programs must complete a SPA report to be submitted to NCTM. Obviously, the standards, although related, are very different. We have begun changing some of our assessments so they align more readily to the NCTM standards. In this report, we have aligned all of our assessments to the NCTM standards.

Although the mathematics education program is housed in the College of Arts and Sciences, we work closely with the Bayh College of Education (BCOE), in particular with the Department of Curriculum, Instruction, and Media Technology (CIMT). With the vital exception of the two mathematics methods courses, the BCOE provides the professional education component of the mathematics education program.

Candidates move through various levels of the “Becoming a Complete Professional” program (or BCP program as the secondary teacher preparation program is known). The initial gateway is the passing of all three elements of the PRAXIS I exam (however, the state of Indiana now allows for alternatives to full passage of PRAXIS I) a minimum 2.5 cumulative grade point average, a minimum 2.5 grade point average in the mathematics content courses taken, and earning a C or better in EPSY 202 Psychology of Childhood and Adolescence. After completion of the program (which requires an overall GPA of 2.5, a professional education GPA of 2.5 and a mathematics content GPA of 2.5) and student teaching, mathematics education candidates may choose to take the PRAXIS II (mathematics content knowledge, 0061) and pursue a teaching license. A score of 136 or higher is required for a program completer to receive a teaching license.

2. Description of the field and clinical experiences required for the program, including the number of hours for early field experiences and the number of hours/weeks for student teaching or internships. (Response limited to 8,000 characters INCLUDING SPACES)

Through the BCP program, our candidates receive exceptional early field and clinical experiences. Classes through the Department of Curriculum, Instruction, and Media Technology (CIMT) administer the early field experiences and the clinical/student teaching experiences. These begin in CIMT 301/301, a 6-hour secondary general methods courses, taken in the spring of a candidate’s junior year concurrently with MATH 388 The Teaching of Middle School Mathematics. The early field experience in these courses occurs in a middle school setting. Candidates are individually placed in a mathematics classroom for approximately 3 weeks, beginning with classroom observations and

culminating with the teaching of a short unit. Student must compose and submit a Unit Report, although this report is not formally assessed for the program. We estimate the time spent in their early field experience as approximately 18 hours, with a minimum of 4 hours of instruction (candidate's teaching of their unit) and probably 2-3 hours in tutoring experience.

The second early field experience occurs in CIMT 400/400L, a 4-hour secondary general methods courses taken concurrently with MATH 391 The Teaching of High School Mathematics in the fall of a candidate's senior year. Candidates are individually placed in a high school mathematics classroom for a minimum of 6 weeks. The CIMT 400/400L course is blocked with our MATH 391 course to produce a period of 3 hours, during which the candidate's early field experience can occur for a full five days a week, rather than the common "parachuting" in two or three days per week. This early field experience has yielded excellent results, with candidates, host teachers, and high school students able to grow more comfortable with each other. Candidates also gain a better idea of what a teacher's day is like. Also, the co-enrollment of students in CIMT 400/400L and MATH 391 has allowed for the mathematics education faculty teaching the course to observe students in the classroom. We estimate that the total number of hours spent in the classroom is about 90, with a minimum of 8 hours of instructional time when the candidates teach their unit. They have additional instructional experience tutoring or teaching other lessons beyond those in their unit. Students must compose and submit a Unit Report on this experience. If the CIMT instructor deems the report to "exceed expectations" in all areas, it is forwarded to the mathematics education faculty to make a determination. If all agree that it "exceeds expectations," this is the report used for program assessment. If not, then students complete another Unit Report during their student teaching experience.

Student teaching involves a full semester with two separate 8-week placements, totaling 16 weeks. Students have an 8-week middle school placement and an 8-week high school placement. Each placement typically begins with a week of observation and gradually eased into full-time instructional responsibilities by the host teacher and university supervisor.

3. Please attach files to describe a program of study that outlines the courses and experiences required for candidates to complete the program. The program of study must include course titles. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.)

Mathematics Education Advising Sheet showing all courses and experiences required for candidates to complete the program.

See **Attachments** panel below.

4. This system will not permit you to include tables or graphics in text fields. Therefore any tables or charts must be attached as files here. The title of the file should clearly indicate the content of the file. Word documents, pdf files, and other commonly used file formats are acceptable.

5. Candidate Information

Directions: Provide three years of data on candidates enrolled in the program and completing the program, beginning with the most recent academic year for which numbers have been tabulated. Report the data separately for the levels/tracks (e.g., baccalaureate, post-baccalaureate, alternate routes, master's, doctorate) being addressed in this report. Data must also be reported separately for programs offered at multiple sites. Update academic years (column 1) as appropriate for your data span. Create additional tables as necessary.

Program: Mathematics Teaching Major		
Academic Year	**# of Candidates Enrolled in the Program**	**# of Program Completers(2)**
2008	69	11
2009	71	14
2010	79	15

(2) NCATE uses the Title II definition for program completers. Program completers are persons who have met all the requirements of a state-approved teacher preparation program. Program completers include all those who are documented as having met such requirements. Documentation may take the form of a degree, institutional certificate, program credential, transcript, or other written proof of having met the program's requirements.

6. Faculty Information

Directions: Complete the following information for each faculty member responsible for professional coursework, clinical supervision, or administration in this program.

Faculty Member Name	Della Thacker
Highest Degree, Field, & University(3)	MA/MS Math Education, Indiana State University
Assignment: Indicate the role of the faculty member(4)	Faculty, field supervisor, program coordinator
Faculty Rank(5)	Associate Professor
Tenure Track	☑ YES
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the	Coordinator of Transition to Teaching, Chair of several department committees, CIMT Program redesign

past 3 years[8]	
Teaching or other professional experience in P-12 schools[9]	Teaching in public schools (1983-1991), Field supervisor (1991-present)

Faculty Member Name	Dong-Joong Kim
Highest Degree, Field, & University[3]	Ph.D., Mathematics Education, Michigan State University
Assignment: Indicate the role of the faculty member[4]	Faculty
Faculty Rank[5]	Assistant Professor
Tenure Track	☑ YES
Scholarship[6], Leadership in Professional Associations, and Service [7]:List up to 3 major contributions in the past 3 years[8]	Search committee, Reviewers in AERA and PME-NA proposals, and ISU IRB member
Teaching or other professional experience in P-12 schools[9]	Research about Indiana School for the Deaf

Faculty Member Name	Jeremy Strayer
Highest Degree, Field, & University[3]	Ph.D., Mathematics Education, The Ohio State University
Assignment: Indicate the role of the faculty member[4]	Instructor, Advisor
Faculty Rank[5]	Assistant Professor
Tenure Track	☑ YES
Scholarship[6], Leadership in Professional Associations, and Service [7]:List up to 3 major contributions in the past 3 years[8]	Published "High School Mathematics Teacher Professional Development in Data Analysis, Probability, and Statistics" in the Journal of the Research Center for Educational Technology received 2010 Ohio Board of Regents Improving Teacher Quality Grant - $95,595 Had an article accepted for publication entitled "Exploring the learning environment of an inverted classroom: How does blended learning influence cooperation, innovation, and task orientation?" in Learning Environments Research.
Teaching or other professional experience in P-12 schools[9]	I have experience leading professional development experiences for 2 years in Ohio (2008-2010) and co-leading with Liz Brown for one year in Indiana (2010-2011)

Faculty Member Name	Larry Tinnerman
Highest Degree, Field, & University[3]	Ed.D., Curriculum and Instruction, Indiana University of Pennsylvania
Assignment: Indicate the role of the faculty member[4]	Faculty, academic advisor
Faculty Rank[5]	Assistant Professor
Tenure Track	☑ YES
Scholarship[6], Leadership in Professional Associations, and Service [7]:List up to 3 major contributions in the past 3 years[8]	Presentation at AACE conferences, Chapter Publication, Division Chair MWERA, University Senate, ISU Scholars Collaboarative Partnership, GSA & ISEA sponsor
Teaching or other professional experience in P-12 schools[9]	Marching Band Instructor - McDowell High School, Erie, PA, Special Education Teacher (6-7 grade) GECAC COmmunity Charter School, Erie, PA

Faculty Member Name	Liz Brown
Highest Degree, Field, & University[3]	Ph.D., Teaching and Learning emphasis in Mathematics Education, University of Utah
Assignment: Indicate the role of the faculty member[4]	Faculty, academic advisor
Faculty Rank[5]	Associate Professor
Tenure Track	☑ YES
Scholarship[6], Leadership in Professional Associations, and Service [7]:List up to 3 major contributions in the past 3 years[8]	Board Member, Indiana Council of Teachers of Mathematics; Obtained two professional development grants for secondary mathematics teachers
Teaching or other professional experience in P-12 schools[9]	2 years teaching mathematics to students in grades 4-9, inservice training in several schools

Faculty Member Name	Susan J. Kiger
Highest Degree, Field, & University[3]	Ph.D., Curriculum, Indiana University
Assignment: Indicate the role of the	

faculty member[4]	Faculty, Dept. Chair, Field Supervisor, Academic Advisor
Faculty Rank[5]	Associate Professor
Tenure Track	☑ YES
Scholarship[6], Leadership in Professional Associations, and Service [7]:List up to 3 major contributions in the past 3 years[8]	Presentations at National Conferences (PDS, AACTE, Critical Questions in Ed Conf (accepted but could not present), SITE
Teaching or other professional experience in P-12 schools[9]	MSD Southwest Allen County, Woodside Middle School; University School, Indiana State University - middle level

(3) e.g., PhD in Curriculum & Instruction, University of Nebraska.
(4) e.g., faculty, clinical supervisor, department chair, administrator
(5) e.g., professor, associate professor, assistant professor, adjunct professor, instructor
(6) Scholarship is defined by NCATE as systematic inquiry into the areas related to teaching, learning, and the education of teachers and other school personnel. Scholarship includes traditional research and publication as well as the rigorous and systematic study of pedagogy, and the application of current research findings in new settings. Scholarship further presupposes submission of one's work for professional review and evaluation.
(7) Service includes faculty contributions to college or university activities, schools, communities, and professional associations in ways that are consistent with the institution and unit's mission.
(8) e.g., officer of a state or national association, article published in a specific journal, and an evaluation of a local school program.
(9) Briefly describe the nature of recent experience in P-12 schools (e.g. clinical supervision, inservice training, teaching in a PDS) indicating the discipline and grade level of the assignment(s). List current P-12 licensure or certification(s) held, if any.

SECTION II - LIST OF ASSESSMENTS

In this section, list the 6-8 assessments that are being submitted as evidence for meeting the NCTM standards. All programs must provide a minimum of six assessments. If your state does not require a state licensure test in the content area, you must substitute an assessment that documents candidate attainment of content knowledge in #1 below. For each assessment, indicate the type or form of the assessment and when it is administered in the program.

1. Please provide following assessment information (Response limited to 250 characters each field)

Type and Number of Assessment	Name of Assessment (10)	Type or Form of Assessment (11)	When the Assessment Is Administered (12)
Assessment #1: Licensure assessment, or other content-based assessment (required)	PRAXIS II	State licensure exam	During or immediately following student teaching/completion of the program
Assessment #2: Content knowledge in secondary mathematics education (required)	GPA in selected mathematics courses	Course grades	After required mathematics courses are completed and throughout the program to determine eligibility for program advancement.
Assessment #3: Candidate ability to plan instruction (required)	Unit Plan	project	During MATH 388, The Teaching of Middle School Mathematics.
Assessment #4: Student teaching (required)	Final Evaluation of Student Teaching	Observation	At the end of student teaching.
Assessment #5: Candidate effect on student leaning (required)	Unit Report	project	At the end of student teaching and/or while taking CIMT 400/400L Teaching III and Teaching III Practicum.
Assessment #6: Additional assessment that addresses NCTM standards (required)	Course Plan	project	During MATH 391, The Teaching of High School Mathematics.

Assessment #7: Additional assessment that addresses NCTM standards (optional)			
Assessment #8: Additional assessment that addresses NCTM standards (optional)			

(11) Identify assessment by title used in the program; refer to Section IV for further information on appropriate assessment to include.
(12) Identify the type of assessment (e.g., essay, case study, project, comprehensive exam, reflection, state licensure test, portfolio).
(13) Indicate the point in the program when the assessment is administered (e.g., admission to the program, admission to student teaching/internship, required courses [specify course title and numbers], or completion of the program).

SECTION III - RELATIONSHIP OF ASSESSMENT TO STANDARDS

1. For each NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards.

	#1	#2	#3	#4	#5	#6	#7	#8
Mathematics Preparation for All Mathematics Teacher Candidates.	☐	☐	☐	☐	☐	☐	☐	☐
1. Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
2. Knowledge of Reasoning and Proof, Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☑	☐	☐	☐	☐	☐	☐
3. Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☑	☐	☐	☐	☐	☐	☐
4. Knowledge of Mathematical Connections. Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☑	☐	☐	☑	☐	☐
5. Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
6. Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☑	☑	☑	☐	☑	☐	☐
7. Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☑	☑	☑	☑	☐	☐
8. Knowledge of Mathematics Pedagogy. Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☐	☐	☑	☑	☑	☑	☐	☐
9. Knowledge of Number and Operations. Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.[Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
10. Knowledge of Different Perspectives on Algebra. Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
11. Knowledge of Geometries. Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
12. Knowledge of Calculus, Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
13. Knowledge of Discrete Mathematics. Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
14. Knowledge of Data Analysis, Statistics and Probability. Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐
15. Knowledge of Measurement. Candidates apply and use measurement concepts and tools. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]	☑	☑	☐	☐	☐	☐	☐	☐

2. 16.1 Field-based Experience. Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in both middle and secondary mathematics classrooms under the supervision of experienced and highly qualified teachers.

Information should be provided in Section I (Context) to address this standard.

3. 16.2 Field-based Experience. Experienced full-time student teaching secondary-level mathematics that is supervised by experienced and highly qualified teacher and a university or college supervisor with mathematics teaching experience.

Information should be provided in Section I (Context) to address this standard.

4. For the NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards.

	#1	#2	#3	#4	#5	#6	#7	#8
16.3 Field-Based Experience. Demonstrate the ability to increase students' knowledge of mathematics.	☐	☐	☐	☐	☑	☐	☐	☐

SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 6-8 key assessments listed in Section II must be documented and discussed in Section IV. Taken as a whole, the assessments must demonstrate candidate mastery of the SPA standards. The key assessments should be required of all candidates. Assessments and scoring guides and data charts should be aligned with the SPA standards. This means that the concepts in the SPA standards should be apparent in the assessments and in the scoring guides to the same depth, breadth, and specificity as in the SPA standards. Data tables should also be aligned with the SPA standards. The data should be presented, in general, at the same level it is collected. For example, if a rubric collects data on 10 elements [each relating to specific SPA standard(s)], then the data chart should report the data on each of the elements rather that reporting a cumulative score..

In the description of each assessment below, the SPA has identified potential assessments that would be appropriate. Assessments have been organized into the following three areas to be aligned with the elements in NCATE's unit standard 1:
• Content knowledge (Assessments 1 and 2)
• Pedagogical and professional knowledge, skills and dispositions (Assessments 3 and 4)
• Focus on student learning (Assessment 5)

Note that in some disciplines, content knowledge may include or be inextricable from professional knowledge. If this is the case, assessments that combine content and professional knowledge may be considered "content knowledge" assessments for the purpose of this report.

For each assessment, the compiler should prepare one document that includes the following items:

(1) A two-page narrative that includes the following:
a. A brief description of the assessment and its use in the program (one sentence may be sufficient);
b. A description of how this assessment specifically aligns with the standards it is cited for in Section III. Cite SPA standards by number, title, and/or standard wording.
c. A brief analysis of the data findings;
d. An interpretation of how that data provides evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording;
and

(2) Assessment Documentation
e. The assessment tool itself or a rich description of the assessment (often the directions given to candidates);
f. The scoring guide for the assessment; and
g. Charts that provide candidate data derived from the assessment.

The responses for e, f, and g (above) should be limited to the equivalent of five text pages each , however in some cases assessment instruments or scoring guides may go beyond five pages.

Note: As much as possible, combine all of the files for one assessment into a single file. That is, create one file for Assessment #4 that includes the two-page narrative (items a – d above), the assessment itself (item e above), the scoring guide (item f above, and the data chart (item g above). Each attachment should be no larger than 2 mb. Do not include candidate work or syllabi. There is a limit of 20 attachments for the entire report so it is crucial that you combine files as much as possible.

1. State licensure tests or professional examinations of content knowledge. NCTM standards addressed in this entry could include all of the standards 1-7 and 9-15. If your state does not require licensure tests or professional examinations in the content area, data from another assessment must be presented to document candidate attainment of content knowledge. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 1 Narrative	Assessment 1 Documentation

See **Attachments** panel below.

2. Assessment of content knowledge in mathematics. NCTM standards addressed in this entry could include but are not limited to Standards 1-7 and 9-15. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks[13]. For post-baccalaureate teacher preparation, include an assessment used to determine that candidates have adequate content backgroud in the subject to be taught.(Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 2 Narrative	Assessment 2 Documentation

See **Attachments** panel below.

(14) For program review purposes, there are two ways to list a portfolio as an assessment. In some programs a portfolio is considered a single assessment and scoring criteria (usually rubrics) have been developed for the contents of the portfolio as a whole. In this instance, the portfolio would be considered a single assessment. However, in many programs a portfolio is a collection of candidate work—and the artifacts included

3. Assessment that demonstrates candidates can effectively plan classroom-based instruction. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments inculde the evaluation of candidates' abilities to develop leasson or unit plans, individualized educational plans, needs assessments, or intervention plans. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 3 Narrative	Assessment 3 Documentation

See **Attachments** panel below.

4. Assessment that demonstrates candidates' knowledge, skills, and dispositions are applied effectively in practice. NCTM standards that could be addressed in this assessment include but are not limited to standard 8. An assessment instrument used in student teaching or an internship should be submitted. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 4 Narrative	Assessment 4 Documentation

See **Attachments** panel below.

5. Assessment that demonstrates candidate effects on student learning. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments include those based on student work samples, portfolio tasks, case studies, follow-up studies, and employer surveys. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 5 Narrative	Assessment 5 Documentation

See **Attachments** panel below.

6. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

Assessment 6 Narrative	Assessment 6 Documentation

See **Attachments** panel below.

7. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

8. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

SECTION V - USE OF ASSESSMENT RESULTS TO IMPROVE PROGRAM

1. Evidence must be presented in this section that assessment results have been analyzed and have been or will be used to improve candidate performance and strengthen the program. This description should not link improvements to individual assessments but, rather, it should summarize principal findings from the evidence, the faculty's interpretation of those findings, and changes made in (or planned for) the program as a result. Describe the steps program faculty has taken to use information from assessments for improvement of both candidate performance and the program. This information should be organized around (1) content knowledge, (2) professional and pedagogical knowledge, skill, and dispositions, and (3) student learning.

(Response limited to 12,000 characters INCLUDING SPACES)

(1) Content Knowledge

In the years 2008-2010, 40 students completed the program, i.e. earned a B.S. in Mathematics Education. Of those 40 students, 36 took PRAXIS II and 33 passed at the level required for licensure in Indiana. 33/36 ¡Ö 92% passed PRAXIS II. All of the students earning a B.S. in Mathematics Education had a GPA of 2.5 or better on a 4.0 scale in their mathematics content courses. We believe candidates are appropriately prepared in terms of their mathematics content knowledge to teach secondary mathematics.

However, each year we (mathematics education faculty) look at the data on PRAXIS II and course grades and discuss these results. We have made program modifications based on this data. For example, all program completers are now required to take MATH 380 Introduction to Abstract Mathematics, MATH 411 The Theory of Numbers, and MATH 413 Linear Algebra I. Prior to this, students were required to take only one of MATH 411 or MATH 413. We found that these courses provide a critical content base for secondary mathematics teachers.

We have also considered requiring MATH 320 Discrete Mathematics as part of the program since that is becoming a more important part of high school courses and is the one content strand that we feel our program is weak on. However, after discussion among the faculty in the Department of Mathematics and Computer Science as a whole, we decided that many of elements students needed could be gleaned from other courses (e.g. MATH 380, MATH 341 Probability and Statistics). However, academic advisors regularly recommend that students select MATH 320 as one of their two upper level electives and in practice, over half of our students are taking that course so we are fairly confident that our students are adequately prepared in this area.

We are noticing a slight downward trend in overall GPA in mathematics content courses. This may be due to a new grading scale that took effect in the fall semester of 2009. Prior to 2009, the grading scale was: A = 4.0, B+ = 3.5, B = 3.0, C+ = 2.5, C= 2.0, D+ = 1.5, D = 1.0 and F = 0.0. For Fall 2009 and later, the grading scale is: A+ = 4.0, A = 4.0, A- = 3.7, B+ = 3.3, B = 3.0, B- = 2.7, C+ = 2.3, C = 2.0, C- = 1.7, D+ = 1.3, D = 1.0, D- = 0.7, and F = 0.0. We may see overall GPA¡ s become slightly lower due to this change.

(2) Professional and Pedagogical Knowledge

Our data findings show that students are acquiring professional and pedagogical knowledge in our program. Overall our candidates are doing very well in their early field and student teaching placements. The mathematics methods courses and the general methods courses seem to be preparing them well for the challenges they will face in the classroom. Mathematics education faculty meet regularly throughout the semester to discuss student progress in this area based on the data we have collected. We continue to refine our methods courses to enhance student preparation.

In addition, we are modifying many of our assessment rubrics to reflect the NCTM standards rather than the INTASC standards that were required by the state of Indiana in previous years. In our discussions, we have concluded that it is not the assignments themselves that need to be modified in a major way, but rather how we are evaluating the assignments. This will also make us more attentive to how we are evaluating our candidates and ensure that we are maintaining appropriate expectations for our students. It will also more clearly emphasize the importance of the NCTM standards and how candidates are expected to meet them in their teaching. We have already seen this in a preliminary way on our Mathematics Teaching Assessment that we started using during candidates¡ second early field experience and during student teaching starting in the Fall of 2010.

(3) Student Learning

Assessing our candidates on the learning of their students is one of the most difficult pieces of program assessment. Collecting concrete data on this is problematic from the standpoint of confidentiality of K-12 student records etc. Although we have several points at which we tangentially/indirectly gauge our students¡ impact on their student learning (all of the places where we look at the types of assessments they use/will use), the point at which we have a direct assessment is during their Report on a Student Teaching Unit. In that report, they are required to demonstrate their impact on student learning.

As we have examined the data each semester, we have found that in nearly all cases, our candidates demonstrate a positive impact on their students¡ learning, however with increasing level of teacher accountability, it is important that we continue to emphasize the importance of this component.

SECTION VI - FOR REVISED REPORTS OR RESPONSE TO CONDITIONS REPORTS ONLY

1. For Revised Reports: Describe what changes or additions have been made to address the standards that were not met in the original submission. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Revised Report are available on the NCATE web site at http://www.ncate.org/Accreditation/ProgramReview/ProgramReportSubmission/RevisedProgramReports/tabid/453/Default.aspx

For Response to Conditions Reports: Describe what changes or additions have been made to address the conditions cited in the original recognition report. Provide new responses to questions and/or new documents to verify the changes described in this section. Specific instructions for preparing a Response to Conditions Report are available on the NCATE web site at http://www.ncate.org/Accreditation/ProgramReview/ProgramReportSubmission/ResponsetoConditionsReport/tabid/454/Default.aspx

(Response limited to 24,000 characters. INCLUDING SPACES)

Please click "Next"

This is the end of the report. Please click "Next" to proceed.