

# NATIONAL RECOGNITION REPORT

## Initial Preparation of Mathematics Teachers at the Secondary Level (2012 Standards)

National recognition of this program is dependent on the review of the program by representatives of the National Council of Teachers of Mathematics (NCTM).

### COVER PAGE

Name of Institution

Kutztown University of Pennsylvania

Date of Review

MM DD YYYY

08 / 01 / 2018

This report is in response to a(n):

- Initial Review
- Revised Report
- Response to Conditions Report

Program Covered by this Review

Secondary Education Mathematics

Grade Level<sup>(1)</sup>

7-12

(1) e.g. Early Childhood; Elementary K-6

Program Type

First teaching license

Award or Degree Level

- Baccalaureate
- Post Baccalaureate
- Master's

## PART A - RECOGNITION DECISION

SPA decision on national recognition of the program(s):

- Nationally recognized
- Nationally recognized with conditions
- Further development required OR Nationally recognized with probation OR Not nationally recognized [See Part G]

Test Results (from information supplied in Assessment #1, if applicable)

The program meets or exceeds SPA benchmarked licensure test data requirement, if applicable:

- Yes
- No
- Not applicable
- Not able to determine

Comments, if necessary, concerning Test Results:

Under CAEP, there is no stated policy and no CAEP standard stating an 80% pass rate requirement on licensure tests. Additional information can be found at <http://caepnet.org/accreditation/caep-accreditation/program-review-options/data-requirements>.

Program reports a 100% pass rate on Praxis 5161 from 2014-2016.

Summary of Strengths:

Candidates from Kutztown University have appropriate content knowledge. The Kutztown faculty use data to inform instruction, programmatic curricular changes, as well as, program policy. The student teaching experience is very robust, including multiple ways to meet Standards 3 and 4.

## PART B - STATUS OF MEETING SPA STANDARDS

### Standard 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.

Preservice teacher candidates:

1a) Demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, applications in varied contexts, and connections within and among mathematical domains (Number, Algebra, Geometry, Trigonometry, Statistics, Probability, Calculus, and Discrete Mathematics) as outlined in the NCTM Mathematics Content for Secondary.

Met



Met with Conditions



Not Met



Standard 1 Comments:

State-required licensure test(s) aligned to NCTM CAEP Mathematics Content for Secondary and at least one additional assessment collectively demonstrating at least an 80% alignment to each domain of the NCTM CAEP Mathematics Content for Secondary providing evidence that Element 1a\* is met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 1.

\*: Indicates essential (required) element

Section III of the program report indicates Assessments 1, 2, and 6 address this standard.

\*Element 1a: MET

Element 1a was MET in the 8/1/17 Recognition Report by Assessments 1 and 2.

Assessments 1 (Praxis 5161) and 2 (Course Grades) were not revised in the current report.

Assessment 6 (Content Competency Examination): Although a single question is insufficient to fully meet a Content Competency, Assessment 6 provides supporting evidence for competencies indicated in the Feedback section below.

Feedback on the NCTM CAEP Mathematics Content for Secondary alignment:

A.1 Number and Quantity Competencies SATISFIED (At least 80% competency alignment)

Competencies A.1.1-A.1.4 were satisfied by Assessment 1, and A.1.1-A.1.5 were satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting evidence for A.1.1-A.1.4.

A.2 Algebra Competencies SATISFIED (At least 80% competency alignment)

Competencies A.2.1-A.2.5 were satisfied by Assessment 1 and A.2.1-A.2.7 were satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting

evidence for A.2.1-A.2.6.

**A.3 Geometry and Trigonometry Competencies SATISFIED (At least 80% competency alignment)**

Competencies A.3.2-A.3.9 were satisfied by Assessment 1 and A.3.10 was satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting evidence for A.3.1- A.3.10.

**A.4 Statistics and Probability Competencies SATISFIED (At least 80% competency alignment)**

Competencies A.4.1, A.4.3, A.4.4, and A.4.5 were satisfied by Assessment 1 and A.4.1-A.4.6 were satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting evidence for A.4.1-A.4.5.

**A.5 Calculus Competencies SATISFIED (At least 80% competency alignment)**

Competencies A.5.1, A.5.3, and A.5.5 were satisfied by Assessment 1 and A.5.1-A.5.6 were satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting evidence for A.5.1-A.5.5.

**A.6 Discrete Mathematics Competencies SATISFIED (At least 80% competency alignment)**

Competencies A.6.1-A.6.3 were satisfied by Assessment 1 and A.6.1-A.6.5 were satisfied by Assessment 2 in the 8/1/17 Recognition Report.

Assessment 6 (Content Competency Examination) provides supporting evidence for A.6.1-A.6.4.

#### Standard 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.

Preservice teacher candidates:

2a) Use problem solving to develop conceptual understanding, make sense of a wide variety of problems and persevere in solving them, apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts, and formulate and test conjectures in order to frame generalizations.

2b) Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; represent and model generalizations using mathematics; recognize structure and express regularity in patterns of mathematical reasoning; use multiple representations to model and describe mathematics; and utilize appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.

2c) Formulate, represent, analyze, and interpret mathematical models derived from real-world contexts or mathematical problems.

2d) Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.

2e) Demonstrate the interconnectedness of mathematical ideas and how they build on one another and recognize and apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.

2f) Model how the development of mathematical understanding within and among mathematical domains intersects

with the mathematical practices of problem solving, reasoning, communicating, connecting, and representing.

Met



Met with Conditions



Not Met



Standard 2 Comments:

At least two assessments providing evidence that Elements 2a\*, 2b\*, and at least 2 additional elements are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 2.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 2, 3, 4, and 5 address this standard.

\*Element 2a: MET

Element 2a was MET in the 8/1/17 Recognition Report by Assessments 2 and 3; however, the rubric for Assessment 3 has been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 2a.

Assessment 5 (Teacher Work Sample) provides evidence for Element 2a.

\*Element 2b: MET

Element 2b was MET in the 8/1/17 Recognition Report by Assessment 2 and 3; however, the rubric for Assessment 3 has been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 2b.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 2b.

Assessment 5 (Teacher Work Sample) provides evidence for Element 2b.

Element 2c: NOT MET

No Assessment addressed Element 2c.

Element 2d: MET

Element 2d was MET in the 8/1/17 Recognition Report by Assessment 2 and 3; however, the rubric for Assessment 3 has been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 2d.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 2d.

Assessment 5 (Teacher Work Sample) provides partial evidence for Element 2d; "acceptable" does not address multiple audiences.

Element 2e: MET

Element 2e was MET in the 8/1/17 Recognition Report by Assessment 2 and 3; however, the rubric for Assessment 3 has been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 2e.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 2ew

Assessment 5 (Teacher Work Sample) provides evidence for Element 2e.

Element 2f: MET

## Element 2f was MET in the 8/1/17 Recognition Report by Assessment 2.

### Standard 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.

Preservice teacher candidates:

3a) Apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains.

3b) Analyze and consider research in planning for and leading students in rich mathematical learning experiences.

3c) Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations, and mathematics-specific and instructional technologies in building all students' conceptual understanding and procedural proficiency.

3d) Provide students with opportunities to communicate about mathematics and make connections among mathematics, other content areas, everyday life, and the workplace.

3e) Implement techniques related to student engagement and communication including selecting high quality tasks, guiding mathematical discussions, identifying key mathematical ideas, identifying and addressing student misconceptions, and employing a range of questioning strategies

3f) Plan, select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students.

3g) Monitor students' progress, make instructional decisions, and measure students' mathematical understanding and ability using formative and summative assessments.

Met



Met with Conditions



Not Met



Standard 3 Comments:

At least two assessments providing evidence that Elements 3a\*, 3c\*, 3f\*, and at least 1 additional element are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 3.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 3, 4, and 5 address this standard.

\*Element 3a: MET

Element 3a was MET in the 8/1/17 Recognition Report by Assessments 3 and 5; however, both rubrics have been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 3a.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 3a.

Assessment 5 (Teacher Work Sample) provides evidence for Element 3a.

Element 3b: NOT MET

No Assessment addressed Element 3b.

\*Element 3c: MET

Element 3c was MET in the 8/1/17 Recognition Report by Assessments 3 and 5; however, both rubrics have been replaced.

Assessment 3 (Unit Plan) provides evidence for Element 3c.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 3c.  
Assessment 5 (Teacher Work Sample) provides evidence for Element 3c.

Element 3d: MET

Assessment 3 (Unit Plan) provides evidence for Element 3d.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 3d.

Element 3e: NOT MET

No Assessment addressed Element 3e.

\*Element 3f: MET

Element 3f was MET in the 8/1/17 Recognition Report by Assessment 5;  
however, the rubric has been replaced.

Assessment 3 (Unit Plan) provides partial evidence for Element 3f; does not  
address interpretation and use of assessments results to inform instruction  
because the plan is not implemented.

Assessment 4 (Student Teaching Evaluation) provides partial evidence for  
Element 3f; only "target" addresses use of assessment results to inform  
instruction; does not address interpretation of assessment results.

Assessment 5 (Teacher Work Sample) continues to provide evidence for  
Element 3f; rubric does not address interpretation and use of assessment  
results to inform instruction, although it is implied in the assignment.

Element 3g: NOT MET

Assessment 5 (Teacher Work Sample) provides partial evidence for Element  
3g; does not address use of assessment in instructional decision or use of a  
variety of assessments.

#### Standard 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.

Preservice teacher candidates:

4a) Exhibit knowledge of adolescent learning, development, and behavior and demonstrate a positive disposition toward mathematical processes and learning.

4b) Plan and create developmentally appropriate, sequential, and challenging learning opportunities grounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences.

4c) Incorporate knowledge of individual differences and the cultural and language diversity that exists within classrooms and include culturally relevant perspectives as a means to motivate and engage students.

4d) Demonstrate equitable and ethical treatment of and high expectations for all students.

4e) Apply mathematical content and pedagogical knowledge to select and use instructional tools such as manipulatives and physical models, drawings, virtual environments, spreadsheets, presentation tools, and mathematics-specific technologies (e.g., graphing tools, interactive geometry software, computer algebra systems, and statistical packages); and make sound decisions about when such tools enhance teaching and learning, recognizing both the insights to be gained and possible limitations of such tools.

Met

Met with Conditions

Not Met



Standard 4 Comments:

At least two assessments providing evidence that Elements 4b\*, 4d\*, and 4e\* are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 4.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 3, 4, and 5 address this standard.

Element 4a: NOT MET

No Assessment addressed Element 4a.

\*Element 4b: MET

Assessment 3 (Unit Plan) provides evidence for Element 4b.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 4b.

Assessment 5 (Teacher Work Sample) provides evidence for Element 4b.

Element 4c: MET

Assessment 5 (Teacher Work Sample) provides evidence for Element 4c.

\*Element 4d: MET

Assessment 3 (Unit plan) provides evidence for Element 4d.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 4d.

\*Element 4e: MET

Assessment 3 (Unit Plan) provides evidence for Element 4e.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 4e.

Standard 5: Impact on Student Learning

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.

Preservice teacher candidates:

5a) Verify that secondary students demonstrate conceptual understanding; procedural fluency; the ability to formulate, represent, and solve problems; logical reasoning and continuous reflection on that reasoning; productive disposition toward mathematics; and the application of mathematics in a variety of contexts within major mathematical domains.

5b) Engage students in developmentally appropriate mathematical activities and investigations that require active engagement and include mathematics-specific technology in building new knowledge.

5c) Collect, organize, analyze, and reflect on diagnostic, formative, and summative assessment evidence and determine the extent to which students' mathematical proficiencies have increased as a result of their instruction.

Met

Met with Conditions

Not Met



Standard 5 Comments:



At least two assessments providing evidence that Element 5c\* and at least 1 additional element are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 5.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 4 and 5 address this standard.

Element 5a: NOT MET

No Assessment addressed Element 5a.

Element 5b: MET

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 5b.

Assessment 5 (Teacher Work Sample) provides evidence for Element 5b.

\*Element 5c: MET

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 5c.

Assessment 5 (Teacher Work Sample) provides evidence for Element 5c.

Standard 6: Professional Knowledge and Skills

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.

Preservice teacher candidates:

6a) Take an active role in their professional growth by participating in professional development experiences that directly relate to the learning and teaching of mathematics.

6b) Engage in continuous and collaborative learning that draws upon research in mathematics education to inform practice; enhance learning opportunities for all students' mathematical knowledge development; involve colleagues, other school professionals, families, and various stakeholders; and advance their development as a reflective practitioner.

6c) Utilize resources from professional mathematics education organizations such as print, digital, and virtual resources/collections.

Met



Met with Conditions



Not Met



Standard 6 Comments:

At least two assessments providing evidence that Element 6b\* and at least 1 additional element are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 6.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 3 and 4 address this standard.

Element 6a: NOT MET

No Assessment addressed Element 6a.

\*Element 6b: MET

Assessment 3 (Unit Plan) provides evidence for Element 6b.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 6b.

Element 6c: MET

Assessment 3 (Unit Plan) provides evidence for Element 6c.

Assessment 4 (Student Teaching Evaluation) provides evidence for Element 6c.

Standard 7: Secondary Mathematics Field Experiences and Clinical Practice

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.

Preservice teacher candidates:

7a) Engage in a sequence of planned field experiences and clinical practice prior to a full-time student teaching/internship experience that include observing and participating in both middle and high school mathematics classrooms and working with a diverse range of students individually, in small groups, and in large class settings under the supervision of experienced and highly qualified mathematics teachers in varied settings that reflect cultural, ethnic, linguistic, gender, and learning differences.

7b) Experience full-time student teaching/internship in secondary mathematics that is supervised by a highly qualified mathematics teacher and a university or college supervisor with secondary mathematics teaching experience or equivalent knowledge base.

7c) Develop knowledge, skills, and professional behaviors across both middle and high school settings; examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics; and observe and analyze a range of approaches to mathematics teaching and learning, focusing on tasks, discourse, environment, and assessment.

Met



Met with Conditions



Not Met



Standard 7 Comments:

Information included in Section I - Context #2 of the program report for Element 7a\* and in Section I - Context #2 and #6 for Element 7b\* and at least one assessment for Element 7c\* providing evidence that Elements 7a\*, 7b\*, and 7c\* are met at the acceptable or target level are required in order to satisfy the preponderance of evidence for Standard 7.

\*: Indicates essential (required) elements

Section III of the program report indicates Assessments 4 and 5 address this standard.

\*Element 7a: MET

Section I Context #2: It is evident that the teacher candidates are supervised by experienced and highly qualified mathematics teachers in varied settings.

\*Element 7b: MET

Section I Context #2 and #6: It is evident that the teacher candidates are supervised by experienced and highly qualified mathematics teachers in varied settings. It is evident that the university supervisor has secondary mathematics teaching experience as listed in the faculty table.

\*Element 7c: MET

Assessment 4 (Student Teaching Evaluation) provides partial evidence for

Element 7c; does not address demonstrating knowledge, skills and professional behaviors in middle and high school settings, or examining the nature of mathematics and how it should be taught.

Assessment 5 (Teacher Work Sample) provides partial evidence for Element 7c; does not address demonstrating knowledge, skills, and professional behaviors in middle and high school settings, or examining the nature of mathematics and how it should be taught.

Collectively, Assessments 4, 5, and Section I Context #2 provide sufficient evidence for Element 7c.

## PART C - EVALUATION OF PROGRAM REPORT EVIDENCE

### C.1. Candidates' knowledge of content

Assessments 1 (Praxis 5161), 2 (Course Grades) and 6 (Content Competency Examination) provide evidence that graduates of Kutztown University secondary mathematics education program exhibit strong knowledge of mathematics. Assessments 3 (Unit Plan), 4 (Student Teaching Evaluation), and 5 (Teacher Work Sample) provide additional evidence of mathematical practices in classroom instruction and planning.

### C.2. Candidates' ability to understand and apply pedagogical and professional content knowledge, skills, and dispositions

Candidates' ability to understand and apply pedagogical and professional content knowledge, skills, and dispositions is documented by Assessments 3 (Unit Plan), 4 (Student Teaching Evaluation) and 5 (Teacher Work Sample).

### C.3. Candidate effects on P-12 student learning

Information from Assessments 4 (Student Teaching Evaluation) and 5 (Teacher Work Sample) documents candidates' effects on 7-12 student learning.

## PART D - EVALUATION OF THE USE OF ASSESSMENT RESULTS

Evidence that assessment results are evaluated and applied to the improvement of candidate performance and strengthening of the program (as discussed in Section V of the program report)

The program has provided evidence that assessment results are evaluated and applied to the improvement of candidate performance and strengthening of the program. In discussing results of state content exam, the mathematics faculty have shown pedagogical shifts in the college-level courses.

Evidence is discussed on a regular basis with appropriate stakeholders. Changes have been made given the evidence, for example: a change in policy to require all secondary mathematics education to obtain at minimum a C in each of the nine required content course; course additions, like MAT 220; and the intentional use of formative assessments. There have been substantial modifications in assessment and rubrics to include clearly distinct levels of performance.

## **PART E - AREAS FOR CONSIDERATION**

Areas for consideration

Consider redesigning assessments to more clearly address candidates' demonstration of knowledge, skills, and professional behaviors in both middle and high school settings; and how they examine the nature of mathematics, how it should be taught, and how students learn mathematics.

## PART F - ADDITIONAL COMMENTS

F.1. Comments on Section I (Context) and other topics not covered in Parts B-E:

None

F.2. Concerns for possible follow-up by the CAEP site visitors:

None

## PART G - DECISIONS

Please select final decision:

- National Recognition. The program is recognized through the semester and year of the provider's next CAEP accreditation decision in 5-7 years. The Recognition Report will serve as program level evidence for the accreditation cycle it has been initiated. To retain recognition and to gather new evidence for the next accreditation cycle, another program report must be submitted mid-cycle 3 years in advance of the next scheduled accreditation visit. The program will be listed as Nationally Recognized through the semester of the next CAEP accreditation decision on websites and/or other publications of the SPA and CAEP. The institution may designate its program as Nationally Recognized by the SPA, through the semester of the next CAEP accreditation decision, in its published materials. Please note that once a program has been Nationally Recognized, it may not submit another report addressing any unmet standards or other concerns cited in the recognition report.



**Please click "Next"**

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