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

NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

COVER SHEET

1. Institution Name
Oklahoma Panhandle State University

2. State
Oklahoma

3. Date submitted
04 / 14 / 2008

4. Report Preparer's Information:
Name of Preparer: Jana Peterson
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Phone: (580) 349-1408
E-mail: rwstewart@opsu.edu

6. Name of institution's program
Math-teaching option

7. NCATE Category
Mathematics Education
8. Grade levels(1) for which candidates are being prepared

Secondary 6-12

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

9. Program Type

- Advanced Teaching
- First teaching license
- Other School Personnel
- Unspecified

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

Advanced/Secondary Mathematics (Analysis, Calculus, Trig., Statistics) OR Intermediate Mathematics (Algebra, General Math, Geometry) depending upon which Certification Exam is passed

14. Program report status:

- Initial Review
- Response to One of the Following Decisions: Further Development Required, Recognition with Probation, or Not Nationally Recognized
- Response to National Recognition With Conditions

15. 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?

jn Yes
jn 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)

no change from previous report

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)

no change from previous report

3. Description of the criteria for admission, retention, and exit from the program, including required GPAs and minimum grade requirements for the content courses accepted by the program. (Response limited to 4,000 characters)

no change from previous report

4. Description of the relationship \(^{(2)}\) of the program to the unit's conceptual framework. (Response limited to 4,000 characters)

no change from previous report

\(^{(2)}\): The response should describe the program's conceptual framework and indicate how it reflects the unit's conceptual framework.

5. Indication of whether the program has a unique set of program assessments and their relationship of the program's assessments to the unit's assessment system \(^{(3)}\). (Response limited to 4,000 characters)

no change from previous report

\(^{(3)}\) This response should clarify how the key assessments used in the program are derived from or informed by the assessment system that the unit will address under NCATE Standard 2.

6. 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.

Professional Membership Questionnaire

See Attachments panel below.

7. 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.)
8. 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.

<table>
<thead>
<tr>
<th>Program:</th>
<th>no change from previous report</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Academic Year</td>
<td># of Candidates Enrolled in the Program</td>
</tr>
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</tbody>
</table>

(4) 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.

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

<table>
<thead>
<tr>
<th>Faculty Member Name</th>
<th>no change from previous report</th>
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</thead>
<tbody>
<tr>
<td>Highest Degree, Field, &amp; University(5)</td>
<td></td>
</tr>
<tr>
<td>Assignment: Indicate the role of the faculty member(6)</td>
<td></td>
</tr>
<tr>
<td>Faculty Rank(7)</td>
<td></td>
</tr>
<tr>
<td>Tenure Track</td>
<td>YES</td>
</tr>
<tr>
<td>Scholarship(8), Leadership in Professional Associations, and Service(9); List up to 3 major contributions in the past 3 years(10)</td>
<td></td>
</tr>
<tr>
<td>Teaching or other professional experience in P-12 schools(11)</td>
<td></td>
</tr>
</tbody>
</table>

(5) e.g., PhD in Curriculum & Instruction, University of Nebraska.
(6) e.g., faculty, clinical supervisor, department chair, administrator
(7) e.g., professor, associate professor, assistant professor, adjunct professor, instructor
(8) 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.
(9) 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.
(10) e.g., officer of a state or national association, article published in a specific journal, and an evaluation of a local school program.
(11) 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 NAEYC 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)

<table>
<thead>
<tr>
<th>Type and Number of Assessment</th>
<th>Name of Assessment (12)</th>
<th>Type or Form of Assessment (13)</th>
<th>When the Assessment Is Administered (14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment #1: Licensure assessment, or other content-based assessment (required)</td>
<td>no change from previous report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment #2: Content knowledge in secondary mathematics education (required)</td>
<td>no change from previous report</td>
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<td></td>
</tr>
<tr>
<td>Assessment #3: Candidate ability to plan instruction (required)</td>
<td>no change from previous report</td>
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<td></td>
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<tr>
<td>Assessment #4: Student teaching (required)</td>
<td>no change from previous report</td>
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<tr>
<td>Assessment #5: Candidate effect on student leaning (required)</td>
<td>no change from previous report</td>
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<td></td>
</tr>
<tr>
<td>Assessment #6: Additional assessment that addresses NCTM standards (required)</td>
<td>no change from previous report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment #7: Additional assessment that addresses NCTM standards (optional)</td>
<td>no change from previous report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment #8: Additional assessment that addresses NCTM standards (optional)</td>
<td>Secondary Mathematics Portfolio</td>
<td>Rubric used in methods course</td>
<td>during the secondary math methods required course</td>
</tr>
</tbody>
</table>

(12) Identify assessment by title used in the program; refer to Section IV for further information on appropriate assessment to include.
(13) Identify the type of assessment (e.g., essay, case study, project, comprehensive exam, reflection, state licensure test, portfolio).
(14) Indicate the point in the program when the assessment is administered (e.g., admission to the program, admission to student...
### 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.

<table>
<thead>
<tr>
<th>Mathematics Preparation for All Mathematics Teacher Candidates.</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
<th>#6</th>
<th>#7</th>
<th>#8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>b</td>
<td>e</td>
</tr>
<tr>
<td>2. Knowledge of Reasoning and Proof. Candidates reason, construct, and evaluate mathematical arguments and develop appreciation for mathematical rigor and inquiry. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
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<td>e</td>
</tr>
<tr>
<td>3. Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
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<td>b</td>
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<tr>
<td>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
<td>e</td>
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<tr>
<td>5. Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>b</td>
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<tr>
<td>6. Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
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<td>e</td>
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<tr>
<td>7. Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>e</td>
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<td>b</td>
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<tr>
<td>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
<td>e</td>
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<tr>
<td>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
<td>b</td>
<td>e</td>
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<td>b</td>
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<tr>
<td>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</td>
<td>b</td>
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<tr>
<td>11. Knowledge of Geometries. Candidates use spatial visualization and</td>
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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]

<table>
<thead>
<tr>
<th>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</th>
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<tbody>
<tr>
<td>b b e e e e b b</td>
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</tbody>
</table>

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]

<table>
<thead>
<tr>
<th>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 <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>b b e e e e b b</td>
</tr>
</tbody>
</table>

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]

<table>
<thead>
<tr>
<th>15. Knowledge of Measurement. Candidates apply and use measurement concepts and tools. [Indicators are listed at <a href="http://www.nctm.org/about/ncate/secondary_indic.htm">http://www.nctm.org/about/ncate/secondary_indic.htm</a>]</th>
</tr>
</thead>
<tbody>
<tr>
<td>b b e e e e b b</td>
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</tbody>
</table>

2. 16.1 Field-based Experience. Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in 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.

<table>
<thead>
<tr>
<th>16.3 Field-Based Experience. Demonstrate the ability to increase students' knowledge of mathematics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 #2 #3 #4 #5 #6 #7 #8</td>
</tr>
</tbody>
</table>

SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 6-8 key assessments listed in Section II must be documented and discussed in Section IV. The assessments must be those that all candidates in the program are required to complete and should be used by the program to determine candidate proficiencies as expected in the program standards. Assessments and scoring guides 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.
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 that are addressed 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 a document that includes the following items: a two page narrative that responds to questions 1, 2, 3, and 4 (below) and the three items listed in question 5 (below). This document should be attached as directed.

1. A brief description of the assessment and its use in the program (one sentence may be sufficient);
2. 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.
3. A brief analysis of the data findings;
4. An interpretation of how that data provides evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording; and
5. Attachment of assessment documentation, including:
   (a) the assessment tool or description of the assignment;
   (b) the scoring guide for the assessment; and
   (c) candidate data derived from the assessment.

It is preferred that the response for each of 5a, 5b, and 5c (above) be limited to the equivalent of five text pages, however in some cases assessment instruments or scoring guides may go beyond five pages.

All three components of the assessment (as identified in 5a-c) must be attached, with the following exceptions: (a) the assessment tool and scoring guide are not required for reporting state licensure data, and (b) for some assessments, data may not yet be available.

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 (items 1-5) 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. (Assessment Required)

Provide assessment information (items 1-5) as outlined in the directions for Section IV
Content knowledge in early childhood professional preparation includes knowledge of child development and learning (characteristics and influences); family relationships and processes; subject matter knowledge in literacy, mathematics, science, social studies, the visual and performing arts, and movement/physical education; as well as knowledge about children's learning and development in these areas.

If grades are used as the assessment or included in the assessment, provide information on the criteria for those grades and describe how they align with the specialty standards.

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 include the evaluation of candidates' abilities to develop lesson or unit plans, individualized educational plans, needs assessments, or intervention plans. (Assessment Required)

Provide assessment information (items 1-5) 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 (items 1-5) as outlined in the directions for Section IV

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 (items 1-5) as outlined in the directions for Section IV

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 (items 1-5) 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 (items 1-5) 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 (items 1-5) as outlined in the directions for Section IV

| Rubric for Math Lesson Plans | Assessment 8 Narrative |

See Attachments panel below.

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)

no change from previous report

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

1. Describe what changes or additions have been made in response to issues cited in previous recognition report. List the sections of the report you are resubmitting and the changes that have been made. Specific instructions for preparing a revised report or a response to condition report are available on the NCATE web site at http://www.ncate.org/institutions/process.asp?ch=4

(Response limited to 24,000 characters.)

No changes have been made to any of the previously submitted assessments and/or corresponding documents.

However, a new assessment has been created to address the items identified as areas of concern in the original program review report. This has also caused Section III to be modified.

This new assessment #8 and corresponding documentation is located in Section IV of this rejoinder.

We have also created a one page survey, to be utilized at the beginning of the Methods and Materials of Teaching Mathematics in the Secondary Classroom course, which asks each candidate to identify any professional mathematics organizations to which he/she belongs. We strongly encourage students to join the various mathematical organizations of interest to them as the fees for joining as a student are considerably less than following graduation; however, we do not make it a requirement. A copy of this survey is uploaded in Section One, item #6.

In Sections C.1 and C.2 of the program reviewer’s report, it was noted that content knowledge is largely satisfied with the exception of the indicators mentioned. Additionally, lack of evidence of the history of mathematics, as well as, the lack of evidence of the use of technology was also noted. Finally, concrete materials and involvement in mathematical organizations were identified as areas of concern.
The development of Assessment # 8, Secondary Mathematics Portfolio, has been created to address the identified NCTM indicators identified as unmet in the report, which includes indicators dealing with the history of mathematics and the use of technology. It additionally addresses the use of professional organization materials. These components of the Secondary Mathematics Portfolio Assessment instrument should help to strengthen the previously provided course description.

In section C.3, the program reviewer stated that there is not enough evidence to show the effect of the teacher candidate on student learning. We agree with this statement as there is only one (1) candidate who was eligible for inclusion into our data matrix. This is expected to change as we have more candidates successfully complete the Mathematics Education Program and we have more data to review.

In Part D, the remarks made by the program reviewer are similar to those made in Section C and have already been addressed in this rejoinder.

In Part E, the incorporation of technology has already been addressed in section C as has representation. The remaining item is focused on the candidates’ ability to measure and reflect upon their effect on secondary students’ learning. This has also been previously discussed in section C.3.

Please click "Next"

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