

Program Report for the Preparation of Secondary Mathematics Teachers National Council of Teachers of Mathematics (NCTM) 2012 Standards - Option A

NCATE approved the 2012 NCTM Standards in 2012. Beginning in Spring 2015, programs submitting reports must use the 2012 Standards.

COVER SHEET

1. Institution Name

Clarion University

2. State

Pennsylvania

3. Date submitted

MM DD YYYY

03 / 15 / 2017

4. Report Preparer's Information:

Name of Preparer:

Marcella McConnell

Phone:

(814) 393-2250

Ext.

E-mail:

misacco@clarion.edu

5. CAEP Coordinator's Information:

Name:

Jesse Haight

Phone:

(814) 393-2385

Ext.

E-mail:

jhaight@clarion.edu

6. Name of institution's program

Bachelor of Science in Mathematics Education

7. CAEP Category

Mathematics Education

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

7-12

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

9. Program Type

First teaching license

10. Degree or award level

Baccalaureate

Post Baccalaureate

Master's

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

PA Instructional Level I Certification in 7-12 Grade 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 Educator Preparation provider (EPP) seeking

CAEP accreditation for the first time (initial accreditation)

Continuing CAEP accreditation

16. State Licensure data requirement on program completers disaggregated by specialty area with sub-area scores:

CAEP requires programs to provide completer performance data on state licensure examinations for completers who take the examination for the content field, if the state has a licensure 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)

Clarion University of Pennsylvania (CUP) is a high-achieving, nationally recognized, comprehensive institution that delivers a personal and rigorous academic experience for all of its undergraduates. The university's 128-acre campus maintains a safe, personal, and friendly atmosphere and offers world-class academic challenges and the kind of support and personal attention that allows students to flourish. As of fall 2010, CUP serves 6,245 undergraduate students and 1,098 graduate students for a total enrollment of 7,343. Our mission is to prepare effective, dedicated and high quality professionals, decision makers and lifelong learners who have mastered a recognized body of knowledge, internalized standards of excellence and demonstrated the required candidate performances.

The Pennsylvania State System of Higher Education (PASSHE) governs all state-owned universities. Thus, the programs offered at CUP must align with their policies. The PASSHE policy placing an upper limit of 120 credit hours for any university major offered at a state school in PA influences the application of the NCTM/CAEP Standards for the Secondary Mathematics Education program.

There are PDE policies that influence our program. PDE requires that all candidates to pass the PAPA/PRAXIS Core, exit GPA, PDE form #430, PRAXIS II, SPED and ELL requirements, Early Field Experience hours, and alignment with INTASC principles.

1. Candidates must pass PAPA/PRAXIS Core exams (Reading, Writing and Mathematics) with a combined score of 522 to remain in the certification program.
2. PDE requires that candidates earn at least a 3.0 overall GPA at the time of application for certification, and earn a passing score on the PDE form #430 Student Teaching Evaluation in each of the four categories: Planning, Classroom Environment, Instructional Delivery and Professionalism.
3. The PDE requires that all teacher certification programs include early field experience hours in four stages: 40 hours of Observation and Exploration (Stages 1 & 2), 150 hours of Pre-student teaching (Stage 3) and a minimum of 12 weeks of full time student teaching (Stage 4).
4. The PDE requires that candidates earn at least a 3.0 overall GPA at the time of application for certification, and earn a passing score on the PDE form #430 Student Teaching Evaluation in each of the four categories: Planning, Classroom Environment, Instructional Delivery and Professionalism.

5. The PDE requires that all teacher certification programs in Pennsylvania include at least 9 credits of Special Education coursework, and 3 credits of English Language Learner coursework (or hourly equivalent of integrated coursework).

6. Candidates must also pass their PRAXIS II content exam before certification.

7. The PDE uses the 10 INTASC principles as the Standards for professional competency. These INTASC Standards serve as benchmarks for teacher preparation programs in Pennsylvania, and align with CUP's Conceptual Framework.

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)

The Pennsylvania Department of Education (PDE) requires expanded hours of field experience throughout the four-year teacher certification programs. This means that teacher candidates must spend many more hours in public school classrooms than has previously been required. The four stages of PDE field experiences requirements are STAGE 1 OBSERVATION (minimum of 20 hours), STAGE 2 EXPLORATION (minimum of 20 hours), STAGE 3 PRE-STUDENT TEACHING (minimum of 150 hours) and STAGE 4 STUDENT TEACHING (minimum of 12 weeks). Clarion University requires a full semester or 15 to 17 weeks of student teaching. Each stage is progressively more intensive, requiring the candidate to gradually assume more responsibility. Throughout the stages, a cooperating teacher must have a teaching certificate and must have at least 3 years of satisfactory certificated teaching experience. During stages 3 and 4, the cooperating teacher must be certified to teach secondary mathematics, have taught for at least 3 years in a 7 - 12 mathematics classrooms, and have acquired tenure.

In STAGE 1 OBSERVATION, the candidate acquires observation skills and knowledge of child development. Candidate present the cooperating teachers with information from the professor describing the goal(s) and objective(s) of the observation. In STAGE 2 EXPLORATION, the candidate acquires observation and assessment skills, knowledge of child development and PA Academic Standards, skill in planning based on observations and standards, knowledge of child environments and ability to assess them, knowledge of community agencies and skill of advocacy, interacting and communicating with parents. Candidates present the cooperating teacher with the professor's form outlining what is to be accomplished through the exploration. The cooperating teacher is encouraged to comment on the form to provide feedback regarding the experience and candidate. Required activities include maintaining observation logs signed by cooperating teachers, completing observation reports with feedback provided by university instructors and group meetings once a week with university instructors so that theory can be potentially connect to practice. The following are the courses involved in Stage 1 and 2.

STAGE 1 & 2 Courses

ED 110 Foundations of Education

ED 122 Educational Psychology

ED 350 English Language Learners

In STAGE 3 PRE-STUDENT TEACHING, the candidate acquires knowledge of content areas and standards related to them, knowledge of integrated curriculum, ability to plan, implement, and reflect on lessons and activities for children, ability to communicate effectively with children, peers, parents, and supervisors. During this stage, the secondary mathematics candidates learn about NCTM, PA Common Core Content and 8 practice standards in greater detail. The course work for this stage is at the 300 - 400 level. The following courses are grouped into two blocks: a) ED 327 integrates specific observations, tutoring, and one supervised teaching experience, and are a prerequisite for the extended field experience preceding student teaching. ED 339 (Methods of Teaching and Evaluating Mathematics), ED 329 and ED 417 are grouped and include an extended daily mathematics classroom experience to total required 150 hours. The block field experience is designed to provide students with specific university courses during the first part of the BLOCK semester, then a consecutive 4-week, one-half day field experience in the secondary mathematics classrooms. Candidates are assigned to a specific classroom for "mornings only" during the 4-week experience. Then, the candidates will take content courses in the afternoon. It is anticipated that the candidates will spend a minimum of 20 hours per week in a classroom setting during these four weeks. Supervision is paramount to the Block experience. Both university supervisors and cooperating professionals provide supervision during this experience. The cooperating teachers must have significant experience in teaching in the mathematics discipline and be successful in their practice. University supervisors represent the faculty who teach courses in the Block and hence, provide supervision that is aligned not only to the individual course, but to the secondary mathematics program. Teacher candidates in the Block Program are evaluated by The Clarion University of Pennsylvania Competency Evaluation: Field Experience in Secondary Education. The overall performance indicators are as follows: Planning and Preparation (demonstrates knowledge of content, sets clear objectives for each instructional episode, collaborates with others as instructional partners, and develops developmentally appropriate and effective instructional plans; Classroom Environment (demonstrates and encourages a positive attitude for learning, handles discipline problems effectively, exhibits respect for individual differences; Instruction (demonstrates ability to explain content clearly, expresses appropriate language, grammar, and voice qualities, motivates learners effectively/exhibits enthusiasm); and Professionalism (communicates professionally and effectively with learners, meets professional responsibilities, accepts and responds to constructive feedback professionally). During stage 3, cooperating teachers are included in activity planning with university faculty prior to the beginning of the pre-student teaching experience. The cooperating teachers are also responsible for completing candidate evaluation forms and

providing useful candidate performance feedback.

STAGE 3 Courses

ED 327 Instructional Strategies

SPED 418 Exceptionalities in the Regular Classroom

ED 339 Methods of Teaching and Evaluating Mathematics

ED 327 Educational Evaluation

ED 417 Advanced Educational Technology

SPED 441 Teaching Secondary Students with Disabilities

SPED 442 Differentiated Instruction

In STAGE 4 STUDENT TEACHING, the candidate acquires the ability to use skills and knowledge gained in stages one through three. The student teaching courses provide candidates with 16 weeks of student teaching in various grade levels 7 - 12. Each candidate will have a junior high and senior high experience. ED 424/425 Secondary Student Teaching, the professional practicum requires integration and application of planning, instructional and professional knowledge and competencies in secondary schools. After an orientation to the school, teacher candidates fulfill the requirements under the direction of a cooperating teacher and university supervisor. Two field assignments offer diversity in grade levels, ability levels of students, content areas, school and community size, multicultural settings, and/or cooperating professionals. Prerequisites include the completion of 90 semester hours, satisfactory standing in admission and retention standards in the college, completion of all required professional courses in certification area with a minimum of grade of "C," a cumulative 3.0 QPA, and meeting university residence requirements.

First Student Teaching Assignment (1st placement) and Second Teaching Assignment (2nd placement)

During the first two weeks, the teacher candidate progresses through the orientation phase of student teaching by developing a familiarity with the students, classrooms, school organizations, and community, and by observing, team teaching, and teaching several lessons or small groups in one subject area. Teacher candidates gradually teach two to five subjects or classes continually during week three to seven. Teacher candidates teach full time for a minimum of one week during the final weeks of the experience.

3. 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 and numbers. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.) For post baccalaureate or master's programs include a graduate advising form or transcript analysis form showing undergraduate mathematics content course requirements aligned to NCTM Mathematics Content for Secondary.

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| Secondary Mathematics Education Course Descriptions | Secondary Mathematics Education Checksheet |
| Secondary Mathematics Education Course Sequences | |

See Attachment 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.

Field Experience Stage 3 Competency Evaluation Secondary Education

See Attachment panel below.

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: BSED SMAT | | |
|-----------------------|---|--|
| Academic Year | # of Candidates Enrolled in the Program | # of Program Completers ⁽²⁾ |
| 2013-2014 | 29 | 7 |
| 2014-2015 | 30 | 4 |
| 2015-2016 | 30 | 3 |

(2) CAEP 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 | Marcella McConnell |
| Highest Degree, Field, & University ⁽³⁾ | PhD. Curriculum & Instruction concentration Mathematics Education, Kent State University |
| Assignment: Indicate the role of the faculty member ⁽⁴⁾ | Teaching faculty, Student teacher supervision |
| Faculty Rank ⁽⁵⁾ | Instructor |
| Tenure Track | <input checked="" type="checkbox"/> YES |
| Scholarship ⁽⁶⁾ , Leadership in Professional Associations, and Service ⁽⁷⁾ : List up to 3 major contributions in the past 3 years ⁽⁸⁾ | 1. Article: McConnell, M., & Caniglia, J. (2015). Math Rocks Mathematics Teaching in the Middle School, 21(6), 384-385. 2. Presentation: "Secondary Mathematics Pre-Service Teachers' Beginning Story of Development" 66th Annual Meeting of Pennsylvania Council of Teachers of Mathematics Seven Springs, PA, August, 2016 3. Textbook: McConnell, M.K., & McConnell, M.J. (2016). Algebra and Trigonometry for Middle School Teachers. NY: Linus Learning. |
| Teaching or other professional experience in P-12 schools ⁽⁹⁾ | PUBLIC SCHOOL TEACHING EXPERIENCE August 2001 - August 2010 Secondary Mathematics Teacher Karns City High School August 2004 - August 2010 Chair of Mathematics Department Taught Calculus, Algebra III (Pre-Calculus), Algebra I, Pre-Algebra 9, Fundamental Algebra I, Integrated Mathematics I, Integrated Mathematics II, and Basic Math7B Keystone High School August 2001 - May 2004 Taught 7th Grade Basic Mathematics, Pre-Algebra, Academic Algebra I, PSSA Prep, General Algebra I, Math Essentials II, Advanced Mathematics, Integrated Mathematics I, and AP Calculus Secondary Mathematics Cooperating Teacher: Karns City High School Clarion |

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| | University Spring 2007, 2009 Slippery Rock University Spring 2008 Indiana University of Pennsylvania Fall 2007 Reviewer NCTM: Mathematics Teaching in the Middle School Journal Spring 2015 - present Member of NCTM, PAME, AERA, AACTE, MAA, PCTM, and PCLM Improving Elem Math Instruction PDE MSP Title IIB grant awarded to AIU MSC 2016 -2017 |
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| Faculty Member Name | John McCullough |
| Highest Degree, Field, & University ⁽³⁾ | EdD in Curriculum & Instruction, Indiana University of Pennsylvania |
| Assignment: Indicate the role of the faculty member ⁽⁴⁾ | Teaching faculty, Student teacher supervision |
| Faculty Rank ⁽⁵⁾ | Full professor |
| Tenure Track | <input checked="" type="checkbox"/> YES |
| Scholarship ⁽⁶⁾ , Leadership in Professional Associations, and Service ⁽⁷⁾ :List up to 3 major contributions in the past 3 years ⁽⁸⁾ | 1. Webmaster for the Clarion University of Pennsylvania College of Education and Human Services NCATE Electronic Evidence Room 2. Coordinator of Clarion University of Pennsylvania's Instructional Technology Specialist Certificate Program 3. Coordinator of Clarion University of Pennsylvania's College of Education and Human Services |
| Teaching or other professional experience in P-12 schools ⁽⁹⁾ | Certification - Secondary Education Mathematics Cranberry Area School District Dates Employed 1985 - 1989 Employment Duration 4 yrs Junior High Mathematics |

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|---|--|
| Faculty Member Name | Michael McConnell |
| Highest Degree, Field, & University ⁽³⁾ | PhD in Mathematics, Kent State University |
| Assignment: Indicate the role of the faculty member ⁽⁴⁾ | Teaching Faculty |
| Faculty Rank ⁽⁵⁾ | Full professor |
| Tenure Track | <input checked="" type="checkbox"/> YES |
| Scholarship ⁽⁶⁾ , Leadership in Professional Associations, and Service ⁽⁷⁾ :List up to 3 major contributions in the past 3 years ⁽⁸⁾ | 1. Textbook: McConnell, M.K., & McConnell, M.J. (2016). Algebra and Trigonometry for Middle School Teachers. NY: Linus Learning. 2. Presentation: "Preparing Teachers for Differentiated Algebra Instruction" 66th Annual Meeting of Pennsylvania Council of Teachers of Mathematics Seven Springs, PA, August, 2016 3. Presentation: "Archimedes Quadrature of a Parabolic Region" 66th Annual Meeting of Pennsylvania Council of Teachers of Mathematics Seven Springs, PA, August, 2016 |
| Teaching or other professional experience in P-12 schools ⁽⁹⁾ | Certification- Secondary Education Mathematics Pennsylvania, Secondary Education English Ohio Taught English Grades 8 - 12 Grand River Academy Austinberg, Ohio 1998 -1999 |

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|--|---|
| Faculty Member Name | Jonathan R. Brown |
| Highest Degree, Field, & University ⁽³⁾ | PhD Pennsylvania State University |
| Assignment: Indicate the role of the faculty member ⁽⁴⁾ | Teaching faculty, Student teacher supervision |
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| Faculty Rank ⁽⁵⁾ | Full professor |
| Tenure Track | <input checked="" type="checkbox"/> YES |
| Scholarship ⁽⁶⁾ , Leadership in Professional Associations, and Service ⁽⁷⁾ : List up to 3 major contributions in the past 3 years ⁽⁸⁾ | 1. Brown, J.R. & McLaughlin, C.L. (Spring 2015). Jive Talkin', Mandated high-stakes test score statistics: So misunderstood in teacher evaluation wars. PCTM (Pennsylvania Council of Teachers of Mathematics). 2. Brown, J. R. (Summer 2013). Rural Pennsylvania PSSA Mathematics Performance, Dismantling Rural Stereotypes, PCTM (Pennsylvania Council of Teachers of Mathematics). |
| Teaching or other professional experience in P-12 schools ⁽⁹⁾ | 1. Brookville Area School Districts Enhancing Education Through Technology Grant, Responsibilities include research design, data analysis and interpretation, and annual research report, 2004 - 2006. 2. Franklin Area School Districts Enhancing Education Through Technology Grant, Responsibilities include research design, data analysis and interpretation, and annual research report, 2004 - 2007. 3. North Clarion School Districts Enhancing Education Through Technology Grant, Responsibilities include research design, data analysis and interpretation, and annual research report, 2005 - 2007. |

(3) For example, PhD in Curriculum & Instruction, University of Nebraska.

(4) For example, faculty, clinical supervisor, department chair, administrator

(5) For example, professor, associate professor, assistant professor, adjunct professor, instructor

(6) Scholarship is defined by CAEP as a 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) For example, 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, in-service 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 aligned to <i>NCTM Mathematics Content for Secondary</i> (required) | PRAXIS II Mathematics Content Knowledge (0061/5161) | PRAXIS II Mathematics Content Knowledge (0061/5161) | Candidates are encouraged to take this during their junior year. They must pass with a score of 136 (0061) and score of 160 (5161) to earn certification in Pennsylvania. |
| Assessment #2: Content knowledge in secondary mathematics aligned to <i>NCTM Mathematics Content for Secondary</i> (required) | Mathematics Content Course Grades | Mathematics Content Courses MATH 270 MATH 271 MATH 272 MATH 300 MATH 321 MATH 340 MATH 357 MATH 370 MATH 390 MATH 451 MATH 490 CPSC 201 | Candidates must pass these courses with a "C" or better prior to student teaching. |
| Assessment #3: Candidate ability to plan instruction (required) | Mathematics Education Field Portfolio | Mathematics Education Field Portfolio | Completed in ED 339 Stage 3 - Pre-Student Teaching |
| Assessment #4: Student teaching (required) | Student Teaching Performance Profile | Student Teaching Evaluation | Completed during student teaching ED 424/425, the two secondary field experiences. One completed in an 8 week junior high placement and another completed in a 8 week senior high placement. Stage 4 -Student Teaching |
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| Assessment #5: Candidate effect on student learning (required) | Unit Plan | Pre-test, post-test, adjustments, and reflection component | Completed during student teaching 424/425. One unit plan for each placement. Stage 4 -Student Teaching |
| Assessment #6: Content knowledge in secondary mathematics aligned to NCTM Mathematics Content for Secondary (required) | Senior Seminar Project | Paper and Presentation | Completed in MATH 490 during their last Fall semester. |
| 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. 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.

#1 #2 #3 #4 #5 #6 #7 #8

| #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 |
|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

2. 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

#1 #2 #3 #4 #5 #6 #7 #8

| #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 |
|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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.

3. Standard 3: Content Pedagogy

#1 #2 #3 #4 #5 #6 #7 #8

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:

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.

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5. Standard 5: Impact on Student Learning

#1 #2 #3 #4 #5 #6 #7 #8

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.

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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.

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6. Standard 6: Professional Knowledge and Skills

#1 #2 #3 #4 #5 #6 #7 #8

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

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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.

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7. Standard 7: Secondary Mathematics Field Experiences and Clinical Practice

#1 #2 #3 #4 #5 #6 #7 #8

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.

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Preservice teacher candidates:

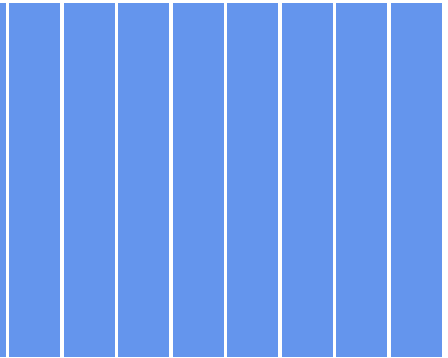
7a) Engage in a sequence of planned field experiences and clinical practice prior to a full-time student teaching/internship experience that include observing and participating in both middle and high school mathematics classrooms and working with a diverse range of students individually, in small groups, 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

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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.



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, scoring guides/rubrics 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/rubrics 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 than 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 CAEP Standard 1:

- Content knowledge (Assessments 1, 2 and 6)
- 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 provide 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/rubric 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/rubrics 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 test(s) or professional examinations of content knowledge. NCTM standards addressed in this entry could include Standards 1-2. If your state does not require licensure tests or professional examinations in the content area, data from another assessment aligned to NCTM Mathematics Content for Secondary must be presented to document candidate attainment of content knowledge. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

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| Assessment #1 – PRAXIS II (0061/5161) Licensure Exam |
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See Attachment panel below.

2. Assessment of content knowledge in mathematics. NCTM standards addressed in this assessment that is aligned to NCTM Mathematics Content for Secondary could include but are not limited to Standards 1-2. 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 background in the subject to be taught. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

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| Assessment #2: Content Knowledge in Mathematics (Mathematics Course Grades) |
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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 3. 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 as outlined in the directions for Section IV

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| ASSESSMENT #3: Candidate Ability to Plan Instruction Mathematics Education Field Portfolio | Common Core Standards Reaction PAPER |
| Research Project Knowledge of Students | |

See Attachment 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 Standards 3, 4, 6, and 7. 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

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| Mathematics Student Teaching Performance Profile (STPP) | Visitation Report Form |
| ASSESSMENT #4: Assessment of Student Teaching Secondary Mathematics Student Teaching Performance Profile (STPP) | |

See Attachment panel below.

5. Assessment that demonstrates candidate effect on student learning. NCTM standards that could be addressed in this assessment include but are not limited to Standard 5. 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

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| Understanding By Design Description | Assessment #5 - Candidate Effect on Student Learning |
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See Attachment panel below.

6. Assessment of content knowledge in mathematics. NCTM standards addressed in this assessment that is aligned to NCTM CAEP Mathematics Content for Secondary could include but are not limited to Standards 1-2. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks.

Provide assessment information as outlined in the directions for Section IV

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| Assessment #6 –Content Knowledge of Mathematics (Senior Seminar) |
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See Attachment 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 have 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)

Overall:

Three changes at Clarion University since our last submission will allow for greater ease in using assessments to generate meaningful program growth. In 2014, Clarion University formed the Institutional and Student Learning Assessment Committee (ISLAC) to create a culture of assessment on campus. Every program writes a report aligned to University-Wide Learning Outcomes. These reports focus on one outcome and allow the programs to interpret and use the data to spur program growth. Annual reports are submitted and reviewed across the entire University. The second for a more robust analysis of key data is the adoption of the Chalk and Wire data management system. This began for all freshmen education students in the fall 2016 semester and allows for easy storage and manipulation of the data. It makes the data readily available for sharing at department and curricular meetings. The final change that will allow for a greater concentration on program growth is the hiring of a full-time administrator to focus on assessment and accreditation. The position is an Associate Dean level who will be in charge of all program assessments and action plans to produce meaningful growth in our programs.

Currently, Clarion University's overall assessment plan includes several benchmarks that must be met for candidates to progress through the program and exit successfully, as well as specific criteria for the secondary mathematics program.

First Benchmark: at the time a candidate completes 68 credits, they must have achieved the following,

Overall GPA 2.8 or above

Pass PAPA or Praxis Core exams

Successfully completed (C or better) 6 credits in Writing/Literature and 6 credits of Mathematics

Successfully completed of at least 6 credits of professional education coursework, including fieldwork

Obtained all required clearances and medical screening results submitted

Second benchmark, entry into student teaching, the candidates must,

Successfully completed (C or better) required content courses

Take required Praxis II exam

Satisfactory completion of senior "Block" semester, including content methods course, assessment course, advanced technology course, and special education courses

Satisfactory completion of extended Early Field experience and satisfactory scores on Professional Dispositions assessments
Final benchmark, exiting the program, candidates must,
Show minimum overall GPA 3.0
Satisfactorily complete two placements (8 weeks each) Student Teaching
Satisfactorily complete the two Unit Plans
Earn Competent scores on Student Teaching Performance Profile
Earn Competent scores on PDE 430

Over the past five years the enrollment in Clarion University's Education programs has decreased greatly across all the programs but is beginning to rebound. As a result, the number of faculty in each specialty area within the Education Department has also been reduced, which has led to more collaboration.

It is noteworthy that at this time, and for the past several years, the secondary mathematics education faculty member holds dual appointments/assignments in both the Education Department and the Chemistry, Physics & Mathematics department. This faculty member teaches courses at all stages of the candidates' development, from STAGE 1 ED 122 (Educational Psychology) and MATH 170 (PRE-Calculus) to STAGE 3 (Methods) and STAGE 4 (Student Teaching).

Student learning assessment results from the student teaching semester are initially reviewed by the mathematics education and mathematics faculty and the university supervisors. If the assessment reveals consistent weaknesses, recommendations are forwarded to the Education and content departments. Feedback about this assessment in particular has led to revisions in the design, explanation to students and reporting of data of this instrument and process.

1. Content:

The connections between the three content assessments were obvious. Candidates performed consistently over all three assessments. Data Analysis, Statistics, & Probability continues to be a weakness that we have been addressing, but will continue working. The mathematics educator gave the MATH 321 course professor(s) test items that would could be incorporated into the course. The department gave suggestions to advise candidates to take the introductory course MATH 221 (Elementary Applied Statistics) or MATH 211 (Fundamental Topics in K-8), which include the topics. One mathematics professor shared his website to help the candidates review the introductory statistics concepts: <http://dmadison.clarion.edu/math221/>. The other subtest that the department wanted to improve was the Measurements, Geometry, and Trigonometry. Even though this subtest was higher than the state and national level, the department discussed advising the candidates to take Pre-Calculus, tutor Pre-Calculus undergraduates, and shared links with the candidates.

During the last bi-semester meeting, we discussed ways to help candidates who transfer Calculus I, II or III from other institutions. Overall, the candidates

are on target. Pass rate and scores on the PRAXIS II, strengthens the need for the rigor in our courses.

The low enrollment during these years was part of the conversation on improving GPA and PRAXIS II results. Both departments (Education and Chemistry, Mathematics & Physics) discussed how learning mathematics with other undergraduates is an important component to understanding the topics at an advanced level. Clarion's enrollment in this program is increasing and the department has created extracurricular activities for the candidates, such as MATH club and weekly MATH circles, to help them engage in mathematics in a collaborative way. These activities connect straight mathematics majors with the candidates in a positive way.

While we would like all of them to exceed expectations, that is simply not realistic. If a student does not pass the course with a C or better they must retake the course. Not all indicators are met at this time and we hope to modify this and continue monitoring. Fundamentally, the students meeting our expectations are meeting the NCTM/CAEP standards by passing the required courses. Additionally, during the analysis of these candidates it was found that students may have trouble with MATH 271 Calculus II and MATH 321 Intermediate Applied Statistics. The small numbers of students in the program during these years make the implications tenuous, since a few students can skew the results. Low enrollment has not swayed our expectations and rigor. The department members would like to see more candidates using their senior seminar work to create a publication or presentation at various state-wide conferences.

Additionally, the department has created a Mathematical Assessment survey to determine the level of retention for the candidates' prior undergraduate mathematics courses. The instrument is in progress for implementation, but the discussions on the development has positively changed the direction of the course, products, and level of difficulty. Multiple professors were teaching this course, however, so not all candidates' preparation work assignments were consistently recorded. All the standards are addressed in the preparation for the paper and presentation, but there is no recorded evidence.

Our program needs to align our curriculum to the history standards in a more meaningful way. We have a MATH 217 Historical Development of Mathematics course for our middle-level mathematics students, which could be a way to improve align and enrich the program.

2. Professional and Pedagogical knowledge, Skill, and Dispositions:

A point of importance that came from the data is that our candidates are challenging themselves to incorporate high cognitively demanding activities, but from reflections are not ready to give up on their traditional ideas of teaching mathematics. When the candidates struggle with implementation, they revert to procedural methods. The practice standards are not

demonstrated within and among mathematical domains. The candidates are able to use the pdesas.org website for the content standards, but have difficulties with the practices standards. The use of NCTM resources has increased with the multiple assignments requiring them. We will continue to model effective instructional strategies to eliminate the gap in achieving more high level activities.

3. Student Learning:

It was evident that the collaboration between candidates with clinical supervisors need clarity with the newer assessments. Overall, the data from unit plan on students' learning was positive. Along with another unit plan being added to the assessment, a reason for the high level of mastery could be that the candidates complete a unit plan in their methods course prior to student teaching. By adding an additional unit plan to compare junior-high to senior-high experiences has helped support our efforts for candidates to develop age appropriate instruction. To help with adequate interpretation of the candidates' student achievement connections and emphasis to ED 339 assignments could be beneficial.

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 CAEP website at <http://caepnet.org/accreditation/caep-accreditation/spa-program-review-policies-and-procedur>

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 CAEP website at <http://caepnet.org/accreditation/caep-accreditation/spa-program-review-policies-and-procedur>

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

Please click "Next"

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