## Assessment 4

## Student Teaching Evaluation

# Assessment Documentation

## The assessment tool

**Faculty supervisor:** Use the following rating scale to collaboratively evaluate the teacher candidate’s performance in the classroom on the criteria indicated described below. These criteria are based on the National Council of Teachers of Mathematics (NCTM) *Standards for the Preparation of Mathematics Teachers.* Evidence for the Standards should be presented from multiple observations, review of multiple lesson plans, and/or interviews with candidate and cooperating teacher. The ratings on these Standards represent content-area and pedagogy expectations SUNY Oswego School of Education has for its student teachers in Adolescence Mathematics Education. For each rating that falls below the acceptable score of 2, include a comment to explain the rating.

3 = Target Met - The teacher candidate has demonstrated clear evidence of meeting the target criterion.
2 = Acceptable - The teacher candidate has demonstrated evidence of meeting the acceptable criterion.
1 = Unacceptable - The teacher candidate has not met the criterion.

## The scoring guide/rubric for the assessment

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 2a.1) Use problem solving to develop conceptual understanding. | Candidate skillfully uses problem solving to develop deep conceptual understanding.  | Candidate uses problem solving to develop conceptual understanding.  | Candidate’s use of problem solving to develop conceptual understanding is limited or unclear. |
| 2a.2) Use problem solving to ... make sense of a wide variety of problems and persevere in solving them. | Candidate makes sense of a wide variety of problems and perseveres in solving them. Candidate reflects on the problem solving process.  | Candidate makes sense of a wide variety of problems and perseveres in solving them.  | Candidate does not make sense of a wide variety of problems nor perseveres in solving them.  |
| 2a.3) Use problem solving to … …apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts. | Candidate applies and adapts a wide variety of strategies in solving problems confronted within the field of mathematics and other contexts. Candidate provides numerous examples of connections to real-world contexts. | Candidate applies and adapts a variety of strategies in solving problems confronted within the field of mathematics and other contexts. Candidate provides some examples of connections to real-world contexts. | Candidate does not apply and adapt a variety of strategies in solving problems confronted within the field of mathematics. |
| 2a.4) Use problem solving to … …formulate and test conjectures in order to frame generalizations. | Candidate skillfully formulates and tests many conjectures in order to frame generalizations. Candidate reflects on the problem solving process. | Candidate formulates and tests some conjectures in order to frame generalizations. | Candidate does not formulate and test conjectures in order to frame generalizations. |

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 2b.1) Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; | Candidate skillfully reasons abstractly, reflectively, and quantitatively with attention to units, constructs multiple viable arguments and proofs, and thoroughly critiques the reasoning of others.  | Candidate reasons abstractly, reflectively, and quantitatively with attention to units, constructs some viable arguments and proofs, and critiques the reasoning of others. | Candidate does not reason abstractly, reflectively, and quantitatively with attention to units, nor do they construct viable arguments and proofs, nor do they critique the reasoning of others. |
| 2b.2) Represent and model generalizations using mathematics; Recognize structure and express regularity in patterns of mathematical reasoning; | Candidate represents and models multiple generalizations using mathematics. Candidate recognizes structure and clearly expresses regularity in patterns of mathematical reasoning.  | Candidate represents and models at least one generalizations using mathematics. Candidate recognizes structure and expresses regularity in patterns of mathematical reasoning.  | Candidate does not attempt to represent and model generalizations using mathematics nor do they recognize structure and express regularity in patterns of mathematical reasoning.  |
| 2b.3) Use multiple representations to model and describe mathematics; | Candidate uses more than two representations to model and describe mathematics. Candidate recognizes and clarifies the connections between the representations.  | Candidate uses two representations to model and describe mathematics. | Candidate uses a singular representation to model and describe mathematics.  |
| 2b.4) Utilize appropriate mathematical vocabulary and symbols; | Candidate consistently and skillfully uses appropriate mathematical vocabulary and symbols. | Candidate regularly uses appropriate mathematical vocabulary and symbols. | Candidate does not use appropriate mathematical vocabulary and symbols.  |
| 2b.5) Appropriately communicates mathematical ideas to others. | Candidate clearly and consistently communicates mathematical ideas to others. | Candidate adequately communicates mathematical ideas to others. | Candidate does not appropriately communicate mathematical ideas to others.  |
| 2c.1) Formulate and representmathematical models derived from real-­‐world contexts or mathematical problems. | Candidate skillfully formulates and represents a variety of mathematical models derived from real-world contexts or mathematical problems to build mathematical understanding.  | Candidate formulates and represents mathematical models derived from real-world contexts or mathematical problems.  | Candidate does not formulate and represent mathematical models derived from real-world contexts or mathematical problems.  |
| 2c.2) Analyze and interpret mathematical models derived from real-­‐worldcontexts or mathematical problems. | Candidate thoroughly analyzes and interprets a variety of mathematical models derived from real-world contexts or mathematical problems to build mathematical understanding.  | Candidate analyzes and interprets mathematical models derived from real-world contexts or mathematical problems.  | Candidate does not analyze and interpret mathematical models derived from real-world contexts or mathematical problems.  |
| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 2d) Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences. | Candidate consistently and methodically organizes mathematical thinking and uses sophisticated language of mathematics to express ideas precisely, both orally and in writing to multiple audiences. | Candidate organizes mathematical thinking and uses the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.  | Candidate’s mathematical thinking is not organized, and mathematical ideas are imprecise, both orally and in writing to multiple audiences.  |
| 3a) Apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains. | Candidate appropriately applies knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains by referencing all relevant aspects of the CCSS – M. (Common Core State Standards for Mathematics). Choices in mathematical domains are highly developed. | Candidate appropriately applies knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains by referencing the CCSS – M (Common Core State Standards for Mathematics). | Candidate occasionally applies knowledge of curriculum standards for secondary mathematics either within or across mathematical domains by referencing the CCSS – M (Common Core State Standards for Mathematics). |
| 3b) Analyze and consider research in planning for and leading students in rich mathematical learning experiences. | Candidate analyzes and considers research in planning for mathematics instruction and incorporates research-based methods when leading students in many rich mathematical experiences and the cognitive complexity of the task is always maintained. | Candidate analyzes and considers research in planning for mathematics instruction. Candidate leads students in some rich mathematical experiences with appropriate cognitive complexity. | Candidate analyzes and considers research in planning for mathematics instruction. Candidate attempts to lead students in rich mathematical experiences, but the cognitive complexity of the task is not maintained and the candidate always gives the answer. |
| 3c.1) Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations. | Candidate’s lesson plans include a variety of instructional strategies and the lesson plans are differentiated for all relevant diverse populations. | Candidate’s lesson plans include two instructional strategies and the lesson plans are differentiated for at least one diverse population. | Candidate’s lesson plans include only one instructional strategy and are not differentiated for diverse populations. |
| 3c.2) Plan lessons and units that incorporate mathematics-specific and instructional technologies in building all students’ conceptual understanding and procedural proficiency. | Candidate’s lesson plans appropriately incorporate mathematics-specific technologies to build all students’ conceptual understanding and procedural fluency. | Candidate’s lesson plans appropriately incorporate mathematics-specific technology with the intent to build all students’ conceptual understanding and procedural fluency. | Candidate’s lesson plans appropriately incorporate mathematics-specific technology with the intent to build some students’ conceptual understanding or procedural fluency. |
| 3e.1) 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. | Candidate implements techniques for actively engaging students in learning and doing mathematics by selecting high quality tasks and guides productive mathematical discussions centered on key mathematical ideas and applies instructional techniques that assist in identifying and addressing student misconceptions. Uses students’ misconceptions as opportunities for learning. | Candidate implements techniques for actively engaging students in learning and doing mathematics by selecting high quality tasks and attempts to guide productive mathematical discussions centered on key mathematical ideas and attempts to apply instructional techniques that assist in identifying and addressing student misconceptions. | Candidate does not implement techniques for actively engaging students in learning and doing mathematics nor do they select high quality tasks and attempting to apply instructional techniques that assist in identifying and addressing student misconceptions. |

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 3e.2) Implement techniques related to student engagement and communication including and employing a range of questioning strategies. | Candidate employs a wide variety of questioning strategies to access procedural proficiency and conceptual understanding and using both lower order and higher order questions, asking open-ended questions, and allowing students to explain their reasoning in their own words and re-voice the mathematical thinking of others. | Candidate employs two questioning strategies to access procedural proficiency and conceptual understanding and using at least one of the following: both lower order and higher order questions, asking open-ended questions, and allowing students to explain their reasoning in their own words and re-voice the mathematical thinking of others. | Candidate employs only one questioning strategy to access procedural proficiency or conceptual understanding. Questioning strategies (written and verbal) focus on student recall of facts and algorithms with no evidence of interest in understanding the ways students think about mathematics and skewed with regard to level of thinking and difficulty. |
| 3f.1) Plan, select, [implement, interpret], and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students. | Candidate skillfully plans and selects targeted formative and summative assessments to measure mathematical proficiencies for all students. | Candidate plans and selects formative and summative assessments to measure mathematical proficiencies for all students. | Candidate plans and selects formative or summative assessments to measure mathematical proficiencies for some students.  |
| 3f.2) [Plan, select,] implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students. | Candidate uses both formative and summative assessments to effectively measure student proficiencies associated to all student learning outcomes. Candidate deeply reflects on the results of formative and summative assessments to inform instruction.  | Candidate uses both formative and summative assessments to measure student proficiencies associated to all student learning outcomes. Candidate uses results of formative and summative assessments to inform instruction.  | One formative or summative assessment implemented for only some students. Candidate is unable to describe how assessment results were used to inform instruction.  |
| 3g) Monitor students’ progress, make instructional decisions, and measure students’ mathematical understanding and ability using formative and summative assessments. | Candidate implements techniques that monitor all students’ progress using a variety of assessment tools, and makes effective instructional decisions that gauge advancement towards the learning outcomes, and demonstrates the ability to use, modify and/or design both formative and summative assessments, and design assessment processes that distinguish among developmental levels of students’ mathematical knowledge and skills. | Candidate implements techniques that monitor all students’ progress using a variety of assessment tools, and makes effective instructional decisions that gauge advancement towards the learning outcomes, and uses both formative and summative assessments to measure students’ mathematical understanding and ability. | Candidate implements techniques that monitor some students’ progress using one assessment tool, and uses either formative or summative assessments to measure students’ mathematical understanding and ability. |

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 4b.1) Plan and create sequential learning opportunities grounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences. | Candidate’s lesson plans are developmentally appropriate, sequential, and include a wide variety of instructional strategies and related learning opportunities that are grounded in the most current mathematics education research. | Candidate’s lesson plans are developmentally appropriate, sequential, and include instructional strategies and related learning opportunities grounded in mathematics education research. | Candidate’s lesson plans are not developmentally appropriate, nor are they sequential or grounded in mathematics education research. |
| 4b.2) Plan and create developmentally appropriate, and challenging learning opportunitiesgrounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences. | Candidate’s lesson plans provide opportunities to actively engage students to build new knowledge from prior knowledge and experiences. New learning is clearly and relevantly connected to prior knowledge as students are actively engaged in generating their own questions. | Candidate’s lesson plans provide opportunities to actively engage students to build new knowledge from prior knowledge and experiences.  | Candidate’s lesson plans rarely provide opportunities to actively engage students and do not attempt to build new knowledge from prior knowledge and experiences. |
| 4c.1) Incorporate knowledge of individual differences that exists within classrooms as a means to motivate and engage students. | Candidate incorporates deep knowledge of individual differences that exists within classrooms as a means to motivate and engage students. | Candidate incorporates some knowledge of individual differences that exists within classrooms as a means to motivate and engage students. | Candidate does not incorporate knowledge of individual differences that exists within classrooms as a means to motivate and engage students. |
| 4c.2) Incorporate knowledge of the cultural and language diversity that exists within classrooms as a means to motivate and engage students. | Candidate incorporates deep knowledge of cultural and language diversity that exists within classrooms as a means to motivate and engage students. | Candidate incorporates some knowledge of cultural and language diversity that within classrooms as a means to motivate and engage students. | Candidate does not incorporate knowledge of cultural and language diversity that exists within classrooms as a means to motivate and engage students. |
| 4c.3) Incorporate culturally relevant perspectives as a means to motivate and engage students. | Candidate incorporates deep knowledge of culturally relevant perspectives as a means to motivate and engage students. | Candidate incorporates some knowledge of culturally relevant perspectives as a means to motivate and engage students. | Candidate does not incorporate culturally relevant perspectives as a means to motivate and engage students. |
| 4d) Demonstrate equitable and ethical treatment of and high expectations for all students  | Candidate demonstrates equitable and ethical treatment of and high expectations for all students. Candidate exhibits persistence and tenacity in helping all students reach full potential. | Candidate demonstrates equitable and ethical treatment of and high expectations for all students. | Candidate demonstrates equitable and ethical treatment of and high expectations for only a few students. |
| 4e.1) 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). | Candidate demonstrates an ability to apply mathematical content and pedagogical knowledge to select a wide variety of instructional tools. The implementation of the tools is skillfully demonstrated at an advanced level.  | Candidate demonstrates an ability to apply mathematical content and pedagogical knowledge to select two instructional tools. The implementation of the tools is demonstrated at a proficient level. | Candidate demonstrates an ability to apply mathematical content and pedagogical knowledge to select one instructional tool, but unable to implement the tool effectively.  |
| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 4e.2) Apply mathematical content and pedagogical knowledge to make sound decisions about when such tools in (4e.1) enhance teaching and learning, recognizing both the insights to be gained and possible limitations of such tools. | Candidate consistently recognizes the insights to be gained and limitations of chosen instructional tools or technologies. | Candidate recognizes the insights to be gained and limitations of chosen instructional tools or technologies. | Candidate does not recognize the insights to be gained nor limitations of chosen instructional tools or technologies.  |
| 5a.1) Verify that secondary students demonstrate conceptual understanding and procedural fluency. | Instruction includes multiple pieces of evidence that students demonstrate conceptual understanding and procedural fluency. | Instruction includes one piece of evidence that students demonstrate conceptual understanding and procedural fluency. | Instruction includes one piece of evidence that students demonstrate conceptual understanding or procedural fluency. |
| 5a.2) Verify that secondary students demonstrate the ability to formulate, represent, and solve problems; logical reasoning and continuous reflection on that reasoning. | Instruction includes multiple pieces of evidence that students demonstrate the ability to formulate, represent, and solve problems and that related logical reasoning and continued reflection on that reasoning is appropriate.  | Instruction includes one piece of evidence that students demonstrate the ability to formulate, represent, and solve problems, and that the students exhibit some continued reflection on that reasoning. | Instruction includes one piece of evidence that the students demonstrate the ability to formulate or represent or solve problems, but that students do not reflect on that reasoning. |
| 5a.3) Verify that secondary students demonstrate productive disposition toward mathematics; and the application of mathematics in a variety of contexts within major mathematical domains. | Instruction includes evidence that secondary students demonstrate productive disposition towards mathematics and that they are able to apply mathematics in a variety of contexts within major mathematical domains and students can articulate on their own how to apply the mathematics. | Instruction includes evidence that secondary students demonstrate productive disposition towards mathematics and that they are able to apply mathematics in two contexts within major mathematical domains, and students can articulate with the candidate’s help how to apply the mathematics. | Instruction includes one piece of evidence that secondary students demonstrate productive disposition towards mathematics. |

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 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. | Instruction and post observation interviews provide evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments and determined the extent to which all students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are accurately interpreted and described how the assessment evidence will inform future instruction.Data on student learning is clearly displayed and organized by student learning outcomes. Data analysis determines the extent to which students’ mathematical proficiencies have increased as a result of their instruction including an oral or written reflection on how the assessment evidence will inform future instruction. | Instruction and post observation interviews provide evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments and determined the extent to which all students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are accurately interpreted.Data on student learning is displayed. Data analysis determines the extent to which all students’ mathematical proficiencies have increased as a result of their instruction. | Instruction and post observation interviews provide weak evidence that the candidate collected, organized, analyzed and reflected on diagnostic, formative and summative assessments. The candidate did not reflect upon and determine the extent to which students’ mathematical proficiencies have increased as a result of their instruction. Assessment results are inaccurately or incompletely interpreted. |
| 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. | Candidate takes a highly active role in their professional growth by participating in (and then implementing within lesson planning) at least three professional development experiences that directly relate to the learning and teaching of mathematics.  | Candidate takes a role in their professional growth by participating in (and then implementing within lesson planning) at least two professional development experiences that directly relate to the learning and teaching of mathematics. | Candidate takes a role in their professional growth by participating in (and then implementing within lesson planning) only one professional development experience, and/or the experience is not related to the learning and teaching of mathematics. |
| 6b.1) 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. | Candidate engages in continuous and highly collaborative learning (and then implements within lesson planning) that draws upon highly relevant research in mathematics education through the use of at least two sources to inform practice and enhance learning opportunities for all students’ mathematical knowledge development.  | Candidate engages in continuous and collaborative learning (and then implements within lesson planning) that draws upon research in mathematics education through the use of at least two sources to inform practice and enhance learning opportunities for all students’ mathematical knowledge development. | Candidate engages in intermittent learning (and then implements within lesson planning) that draws upon some research in mathematics education through the use of one source to inform practice; attempts to enhance learning opportunities for students’ mathematical knowledge development. |

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| **NCTM Standard** | **Target Met** |  **Acceptable** | **Unacceptable** |
| 6b.2) Engage in continuous and collaborative learning that enhances learning opportunities for all students’ mathematical knowledge development and advances their development as a reflective practitioner. | Candidate engages in continuous and highly collaborative learning (and then implements within lesson planning) that enhances learning opportunities for all students’ mathematical knowledge development and advances their own development as a highly reflective practitioner.  | Candidate engages in continuous and collaborative learning (and then implements within lesson planning) that enhances learning opportunities for all students’ mathematical knowledge development and advances their own development as a reflective practitioner. | Candidate intermittently engages in collaborative learning (and then implements within lesson planning) that enhances learning opportunities for only a few students’ mathematical knowledge development and does not advance their own development as a reflective practitioner.  |
| 6b.3) Engage in continuous and collaborative learning that involves colleagues, other school professionals, families, and various stakeholders. | Candidate frequently engages in continuous and collaborative learning that involves appropriate stakeholders such as the host teacher, other school professionals, and families.  | Candidate sometimes engages in continuous and collaborative learning that involves appropriate stakeholders such as the host teacher, other school professionals, and families.  | Candidate rarely engages in collaborative learning that involves colleagues or other school professionals, or families or various stakeholders.  |
| 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. | Evidence documents the candidate’s ability to highly develop knowledge, skills and professional behaviors across both middle and high school settings. Evidence documents that the candidate skillfully articulates the nature of mathematics, how mathematics should be taught, and how students learn mathematics. Evidence documents a wide range of approaches to mathematics teaching and learning focusing on tasks, discourse, environment, and assessment of student learning.Transformative practices are evident.  | Evidence documents the candidate’s ability to develop knowledge, skills and professional behaviors across both middle and high school settings. Evidence documents that the candidate articulates the nature of mathematics, how mathematics should be taught, and how students learn mathematics. Evidence documents a range of approaches to mathematics teaching and learning focusing on tasks, discourse, environment, and assessment of student learning. | Evidence does not document the candidate’s ability to develop knowledge, skills and professional behaviors across both middle and high school settings. Evidence does not document that the candidate articulates the nature of mathematics, how mathematics should be taught, and how students learn mathematics. Evidence does not document a range of approaches to mathematics teaching and learning focusing on tasks, discourse, environment, and assessment of student learning. |