

Course Goals

- Study the *Common Core State Standards for Mathematics* (CCSSM), examine implications for student learning of mathematics, and identify applications to classroom math curriculum and instruction.
- Deepen understanding of the *Standards for Mathematical Practice*.
- Deepen understanding of the *Standards for Mathematics Content* in one of these areas:

K-2: Operations and Algebraic Thinking	K-2: Number and Operations in Base Ten
3-5: Operations and Algebraic Thinking	3-5: Number and Operations—Fractions
3-6: Geometric Shape and Measurement	6-8: Expressions and Equations
6-8: Ratios and Proportional Relationships	
9-12: Statistics and Probability for all High School Mathematics Teachers	

Wisconsin Teacher Education Standards Applicable to this Professional Develop Course

Teaching Standard #1. *Teachers know the subjects they are teaching.* The teacher understands the central concepts, tools of inquiry, and structures of the disciplines she or he teaches and can create learning experiences that make these aspects of subject matter meaningful for pupils.

Teaching Standard #4. *Teachers know how to teach.* The teacher understands and uses a variety of instructional strategies, including the use of technology, to encourage children's development of critical thinking, problem solving, and performance skills.

Teaching Standard #9. *Teachers are able to evaluate themselves.* The teacher is a reflective practitioner who continually evaluates the effects of his or her choices and actions on pupils, parents, professionals in the learning community and others and who actively seeks out opportunities to grow professionally.

Teaching Standard #10. *Teachers are connected with other teachers and the community.* The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support pupil learning and well-being and acts with integrity, fairness and in an ethical manner.

Required Course Readings

- (1) Common Core State Standards Initiative. (2010). *Common core state standards for mathematics (CCSSM)*. Available from <http://www.corestandards.org/the-standards>.
- (2) Common Core State Standards Writing Team. (2011). *Progressions for the common core state standards in mathematics*:
 - K, Counting and Cardinality; K-5, Operations and Algebraic Thinking.
 - K-5, Number and Operations in Base Ten.
 - K-6 Geometry
 - K-5 Measurement and Data
 - Grades 3-5 Number and Operations—Fractions.
 - 6-7 Ratios and Proportional Relationships.
 - 6-8 Statistics and Probability.
 - 6-8 Expressions and Equations.
 - 7-HS Geometry
 - High School Statistics and Probability.
 - High School, Algebra.
 - Grade 8 and High School, Functions.Available from <http://ime.math.arizona.edu/progressions/#>.
- (3) Assigned journal articles and handouts for the specific summer institute

Course Grading Procedures

Your grade for this course will be determined using the following percentage allocations.

Course Requirement	Two-Credit Course Percent of Grade		Three-Credit Course Percent of Grade	
	Undergraduate Students	Graduate Students	Undergraduate Students	Graduate Students
Attendance and Participation	20%	20%	20%	20%
Standards Reflection Summary	25%	15%	20%	10%
Homework- Math Tasks and Written Reflections	35%	20%	30%	15%
Action Plan	20%	10%	15%	10%
Activity Reflection and CCSSM Connection	Not required	15%	Not required	10%
CCSSM Reflection and Professional Action Plan	Not required	20%	Not required	15%
CCSSM Implementation Reflection Paper	Not required	Not required	15%	Not required
CCSSM Interpretive Guide	Not required	Not required	Not required	20%

Grades will be assigned on the following scale:

A 93–100%	A– 90–92%	B+ 87–89%	B 83–86%	B– 80–82%	C+ 77–79%
C 73–76%	C– 70–72%	D+ 67–69%	D 63–66%	D– 60–62%	F 0–59%

Course Expectations and Policies

Investment of Time: Study leading to one semester credit represents an investment of time by the average student of not fewer than 48 hours per credit earned.

As a two-credit course, the expected time commitment from students is approximately 96 hours (2 credits x 48 hours per credit earned). As a three-credit course, the expected time commitment from students is approximately 144 hours (3 credits x 48 hours per credit earned).

Attendance: Attendance is vital to achieving the goals of this project course. Participants must attend all 8 sessions, 4 days, in order to be eligible for undergraduate or graduate credit.

Preparation of Assignments: Assignments are to be word processed unless otherwise stated in class or the syllabus. Present each assignment in a neat, organized, and clear manner. Keep a copy of all submitted assignments in case of questions or discrepancies.

Electronic Submission of Assignments: You are expected to provide many of your assignments in electronic format. Acceptable file types include MS Word, Google Doc, Pages, PowerPoint, Keynote, PDF, or JPEG, as appropriate to the assignment. Always name electronic files with your last name followed by a short description of the work. Also, do not include any periods other than before a file format extension. For example: jones-critique1-feb4.docx.

Late or Poor Quality Assignments: All assignments are to be turned in by midnight on the due date. You may request an extension by contacting the instructor prior to the due date provided you have a valid reason. Otherwise each late assignment is penalized by the equivalent of one letter grade for each day it is late. No rewrite of poor quality assignments allowed after the due date; meet with the instructor prior to the due date to review and discuss assignments. No extra credit assignments will be granted.

The following link provides additional information on general University Policies and Procedures:
<http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf>

Required Course Assignments

To receive UWM credit, you must attend the Mathematics Institute of Wisconsin Summer Institute and complete additional assignments. *All materials must be received by email to sara.brown@mathinstitutewi.org by the following date: July 28, 2019*

1. Attendance and Participation in the Summer Institute

Attend and participate in the 4 day Mathematics Institute of Wisconsin Summer Institute. Submit an attendance verification form signed by the institute instructor.

2. Standards Reflection Summary

During the Summer Institute, you will be completing a "Standards Reflection Summary." The form will be distributed during the institute and you will be asked to summarize key points related to the CCSSM focus standards for each session and how you will use these ideas in your classroom. You may scan your handwritten summary from the week as a PDF file or retype it into an MS Word or compatible word processing file as an electronic document that can be emailed to the UWM course instructor.

3. Homework: Math Tasks, Readings, and Written Reflections

Homework will be assigned as part of the Summer Institute. The purpose of homework is to engage you further with the content and ideas from the daily sessions. The homework will include mathematical tasks, readings, written reflections, connections to the CCSSM, and other related activities. A copy of the completed daily homework should be scanned (or retyped) and emailed to the UWM course instructor.

4. Action Plan on CCSSM Implementation

Either individually or with your district team you will work to develop an action plan for next steps in implementing the CCSSM beyond your classroom. This plan can be focused on implementation in your grade level with your grade level team or more broadly in your district with your colleagues. A copy of the completed plan should be scanned (or retyped) and emailed to the UWM course instructor.

5. Activity Reflection and CCSSM Connection

The purpose of this assignment is to professionally reflect upon two critical activities from the summer institute that you found to be meaningful for your teaching and to articulate their connection to the CCSSM. You will write two reflection papers (1-2 pages each), one for each identified critical activity. This paper is to be submitted by email to the UWM course instructor as an attached file.

In the paper, you should: (a) briefly summarize the activity in a paragraph, (b) explain why it was critical or particularly meaningful or impactful for your learning, and (c) explain how it connects to the CCSSM, and include identification of the grade level, domain, cluster, and standard.

6. CCSSM Reflection and Professional Action Plan

The purpose of this paper is to highlight your major learning from the institute as related to the CCSSM and to establish professional goals for further implementation of the CCSSM into your instructional practice. This paper is to be submitted by email to the UWM course instructor as an attached file.

Part A. Reflection on Learning: Identify 2-3 significant mathematical ideas from the week that deepened both your knowledge of the *Common Core State Standards for Mathematics* (CCSSM) and your content knowledge of mathematics. For each, (a) summarize the significant mathematical idea, (b) identify the specific CCSSM Standard for Mathematical Practice or Standard for Mathematics Content (include the specific standard coding and the complete standard statement), and (c) explain why this was significant for you as a learner.

Part B. Action Plan: Identify two individual professional goals that you have for implementing the CCSSM into your instructional practice. Identify one goal related to the Standards for Mathematical Practice and one goal related to the Standards for Mathematical Content in the domain(s) that you studied during the institute. For each goal, (a) provide a statement of your professional goal in 1-2 sentences, (b) identify the related CCSSM standard, and (c) describe approximately 3 action steps you will take toward implementing of the goal.

7. **Implementation Reflection Paper**

As you reflect upon your learning during the institute, what are 2 activities or strategies you will plan to implement in your classroom this fall? For each activity or strategy (a) reflect upon the potential impact for student learning **and** classroom practice (b) identify the related CCSSM standard, and (c) reflect on the potential successes and challenges of implementing the activities or strategies. You will write two reflection papers (2-3 pages each), one for each identified activity or strategy. This paper is to be submitted by email to the UWM course instructor as an attached file.

8. **CCSSM Interpretative Guide:** The purpose of this project is to unpack and deepen understanding of a few selected standards for mathematical content from the CCSS, to examine the development of these mathematical ideas in and alignment with your school curricula materials for mathematics, and to develop an initial “check-in” formative assessment task that would reveal your student thinking related to these standards at the beginning of the school year. This project is delineated into four parts. This project is to be submitted by email to the UWM course instructor as an attached file.

Part 1. Standard(s)

Select a standard(s) examined in the WSMI Institute. List the standard(s) you will be studying for this project, along with the domain, cluster, and grade level.

Part 2. Interpretation of the Standard

What does the standard really mean students will be understanding? What concept-based language might students and teachers use? What representations, diagrams, contexts, and strategies support the understanding?

- (a) Use resources to help you interpret concepts, key terms, or phrases within the standard. Write an interpretation of the standard in teacher-friendly language.
- (b) Provide examples of (1) what these mathematical ideas may look like in classroom practice, and (2) “teacher talk” around this mathematical idea.

Part 3. School Mathematics Textbook Program

Examine the presentation of the mathematics and activities related to this standard(s) in your mathematics textbook program. Use these headings as you respond to each part separately in your written report.

- (a) Textbook Development: How is the mathematics introduced, developed, and reviewed in your textbook program? Describe the activities students will be doing as understanding is developed. Be sure to include development across grade levels.
- (b) Conclusions: Based on interpreting the standard and analyzing your textbook, what conclusions can you draw about the alignment of the standard to your textbook program? Cite both where the textbook program is developing the mathematics and then where the program is not sufficiently providing enough lessons to develop the mathematics.
- (c) Suggestions: What suggestions do you offer teachers as they teach this standard(s) in their classroom?

Part 4. A “Check Point” Formative Assessment Task that Reveals Student Thinking

- (a) Write a formative assessment task (it can have multiple parts and probes) that would reveal student thinking of the mathematics in the standard.
- (b) Provide an example of proficient student work (You may need to create this proficient example). What would you hope to see on students’ papers in response to your assessment task?
- (c) Annotate the proficient student work sample or explain using evidence from the student work to show how the ideas in the response are related to the mathematics in the standard. (For example, you could draw an arrow to a particular aspect of the work and explain: “This shows ...” Then draw another arrow, “This shows ...”)