**Project Information**

**Project Goals**

The *Strong Start Math* project is a collaborative partnership project of the University of Wisconsin-Milwaukee (UWM) and the Milwaukee Public Schools (MPS).

The grant supports school-based teams in strengthening the mathematical foundation of students in Kindergarten (K5) to Grade 3. The goals are to:

1. Deepen teacher knowledge of mathematics concepts, connections, and progressions for teaching the Wisconsin Standards for Mathematics;
2. Strengthen teacher use of high-leverage mathematics teaching practices and research on children's learning of mathematics in classroom instruction; and
3. Build a strong mathematical foundation among young learners by developing understanding and fluency along mathematics learning trajectories.

**Project Website:** [http://uwm.edu/strongstart](http://uwm.edu/strongstart)

[Note: This site contains overview information, we are working to establish a new site specific for our project work together.]

**Expectations**

- Demonstrate strong professionalism within a collaborative culture and learning community focused on mathematics.
- Bring deeper understanding of mathematics content and learning progressions into your teaching.
- Work towards implementing high-leverage teaching practices and student learning activities in mathematics.
- Participate as a member of a school team, Kindergarten (K5)–Grade 3, focused on teaching mathematics.
- Commit to participate throughout the project (two years and three summers).
- Are a member of professional organizations in mathematics education: Wisconsin Mathematics Council (WMC) and National Council of Teachers of Mathematics (NCTM).
- Apply for, are accepted in, and complete the UWM Graduate Certificate program in “Advanced Study of Teaching and Learning” in mathematics, including payment of related fees.
- Enroll, attend, and successfully complete five UWM courses.
- Complete grant evaluation requirements, including videos, each year of grant duration.

**Funding**

The “Starting Students Strong in Mathematics: Strengthening Teacher Mathematical Knowledge and Instruction in Grades K-3” project is funded by the U.S. Department of Education (ESEA Title II, Part B) Mathematics and Science Partnerships program; administered by the Wisconsin Department of Public Instruction ( DPI); and was awarded to the University of Wisconsin-Milwaukee.


**Project Schedule**

**Year 1: Early Number, Operations, & Algebraic Reasoning**

Summer Institute: June 20–July 1, 2016 (8:00 am–4:00 pm)

School Year 2016-2017: Thursdays, 4:30–7:30 pm

**Year 2: Number and Operations in Base Ten**

Summer Institute: June 19–30, 2017 (8:00 am–4:00 pm)

School Year 2017-2018: Thursdays, 4:30–7:30 pm

**Year 3: Measurement, Geometry, and Fraction Concepts**

Summer Institute: June 18–29, 2018 (8:00 am–4:00 pm)

[Note: No school year sessions, as the grant ends in the summer.]

**Key Personnel**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
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<tbody>
<tr>
<td>Dr. DeAnn Huinker, PI, UWM</td>
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**Center for Mathematics and Science Education Research (CMSER)**

**University of Wisconsin-Milwaukee**

**Office:** 2400 E. Hartford Ave

Enderis Hall, Room 265

Milwaukee, WI 53211-3159

**U.S. Mail:** PO Box 413, UWM-CMSER

Milwaukee, WI 53201-0413

**Website:** [http://www.uwm.edu/cmser](http://www.uwm.edu/cmser)

**Fax:** 414-229-4855

**Phone:** 414-229-6646
course information

class sessions

number: Currins 626 Section: 101 (Summer 2016)
Title: Principles and Practices of Teaching Algebraic Reasoning
Credits: 3 Graduate credits
Instructors:
Dr. DeAnn Huinker huinker@uwm.edu 414-229-6646
Dr. Gabriella Pinter gapinter@uwm.edu 414-229-6646
Melissa Hedges mhedges@uwm.edu 414-229-6646
Nicole Hawkins hawkin49@uwm.edu 414-229-6646
Michelle Douglas-Meyer douglams@milwaukee.k12.wi.us 414-704-8952

Dates: June 20-June 25 and July June 28-July 1, 2016 (Monday–Friday)
Time: 8:00 a.m. – 4:00 p.m.
Location: North Division High School, Room 330-331, 1011 West Center Street, Milwaukee, Wisconsin.

Course Objectives

Course Catalog Description: Examination of instructional trajectories for algebra and analysis of teaching strategies for developing and assessing students' algebraic reasoning. Prereq: jr st; teaching experience.

Objectives:

• Deepen understanding of the Common Core State Standards mathematics standards and content progressions for the Operations and Algebraic Thinking (OA) domain in grades K-5.
• Develop a working knowledge of developmental learning trajectories in mathematics to inform classroom instruction and guide children’s learning.
• Strengthen understanding of big ideas in the operations and algebraic thinking domain (e.g., equality, operation meanings and relationships, properties of the operations, problem situation structures).
• Become familiar with research on children’s development of number and operations, including development of numeric reasoning strategies.
• Formulate classroom plans to use research-based, high-leverage teaching practices to foster mathematical practices and understanding among students related to algebraic thinking (e.g., equality/equivalence, composing/decomposing, representational fluency, contextualizing/decontextualizing, numeric flexibility).

Required Texts and Readings


• Counting and Cardinality, Operations and Algebraic Thinking (2011)
• Number and Operations in Base Ten (2015)
• Number and operations—Fractions (2013)
• Geometric Measurement (2012)
• Geometry (2014)
• Categorical and Measurement Data (2011)


Other required readings will be distributed in class, through email, or assigned as website links.
Learning Environment and Cellular or Digital Devices
Please disengage or silence all cellular phones and other electronic devices to protect and support the learning environment of all participants. Store such devices out-of-sight; not sitting on tables or desks. Restrict yourself from checking all personal or work email and other websites during class. Give yourself an electronic vacation for the few hours in which we meet face-to-face!!
You may check voice and email messages or make calls during scheduled breaks. If you need to check on a family member for health or daycare or emergency situations while class is in session, we ask that you quietly go out into the hallway to make the call or send the message.
Otherwise use of electronic devices during a class session, including during whole or small group work or individual work, will result in a loss or reduction of participation points and/or project stipends.

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 three-credit course, the expected time commitment is approximately 144 hours (3 credits x 48 hours per credit earned). Students should spend approximately 50% of the time participating in class sessions; 20% of the time completing assigned readings, studying course content, and completing written reflections and homework tasks; 30% of the time completing course projects.

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 assignments are misplaced or clarification is needed.

Electronic Submission of Assignments: You are expected to provide some 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 very short description of the work to prevent the file being overwritten, deleted, or misplaced. Also make sure YOUR NAME appears on the top of the first page within the document. It is also best to not include any periods other than before a file format extension. Example: hedges-project-july8.docx. Mislabeled files will result in late assignment penalties.

Email: It is your responsibility to check your UWM email regularly or forward your UWM email to a preferred personal or work email location. UWM will automatically send all related university correspondence to your UWM email, as it is the address that automatically links to several UWM functions. The Strong Start Math project will most often use your designated work or home email, please keep the project informed of any changes to email.

Penalty for Submission of Late Assignments: All assignments are due by midnight on the date specified. You may request an extension by contacting the instructor prior to the due date. Otherwise late assignments are penalized by one letter grade for each day it is late. No extra credit assignments or rewrites are granted.

Final Assessment: University policy requires all courses to have a final assessment conducted during the final examination period as scheduled for the particular semester. No separate examination period is established for the summer session; the final assessment requirement will be conducted on the last scheduled day of the course. Specific details will be discussed in class.
1. Attendance

Attendance is vital to achieving the goals of this course. You are expected to attend all class sessions and are expected to arrive on time and stay the entire class session.

Excused absences: Absences will only be excused through electronic written communication, preferably in advance of the absence by email, and given to the designated course instructor. Verbal conversations will not be recorded or considered. You must put into electronic writing the rationale for the absence. Excused absences include a medical issue under a doctor’s care for oneself or an immediate family member, a death in the immediate family, religious observance, or a contractual school district meeting. Include name, date of absence, and rationale, along with any written verification.

Unexcused absences: Each unexcused absence or accumulation of tardiness/early departures results in grade deduction of 10% per absence. For example, if you miss one day of class, the highest grade you may earn is an A-. Three instances of tardiness/early departure will be considered equivalent to one absence; this includes mornings and afternoons in the summer, meaning returning promptly from lunch breaks.

Make-up work for all absences: You are required to make-up all work related to excused or unexcused absences and complete a make-up assignment. Take the responsibility upon yourself and do not ask the instructors what you need to do, but rather:

1. “Find a Friend” to gather all handouts, to learn about any announcements, and to discuss class activities.
2. Complete all readings and activities on your own related to your absence.
3. Prepare written summaries and reflections on all missed readings and activities with sufficient detail to document or prove to the instructors you have studied and learned about the missed materials, including completion of your log related to the absence.
4. Find an article on your own about teaching mathematics, read it, prepare a brief summary of the article, and indicate how you might use the ideas in your own teaching.
5. Turn the packet of absence-documented work into the designated course instructor in an envelope or file folder or as an email clearly marked with your name, date/time of absence. This is due no later than one week after the absence to avoid penalties for missed work and learning.

2. Participation in Class Sessions

You are expected to participate as an active class member in whole group discussions, small group work, and individual work in a professional manner that contributes to the engagement and learning of all class members toward course goals. Restrain yourself and your colleagues from side bar conversations as active listening and reflection are important aspects to your own learning in this course. This includes not engaging the instructors in a side bar conversation.

3. In-Class Tasks

During each class session, you will be asked to engage in a number of specific tasks. The purpose of the tasks is to extend and deepen your engagement with course content. The tasks will include, but are not limited to, math tasks, video reflections, group charting, pair/group reporting. Some in-class tasks (e.g., your work, a reflection, a synthesis) will be submitted or recorded in your notebook, as requested by the instructors, for review.

4. PRR: Professional Reading and Reflections

During each class session in the summer, you will be asked to read a specific article or passage from an article, book, or document; and then reflect on the reading. These PRR will be recorded in your notebooks and turned into the instructors for review.

5. Learning Log

Throughout the summer institute you will keep a log of “key points” and “classroom ideas to try.” You will be provided a form to track both morning and afternoon reflections. If you prefer, you may use your computer or electronic device to type your log of reflections. The log will be submitted for instructor review at the completion of the summer institute.
6 Individual Project: CCSSM and Learning Trajectories Assessment Project (Due July 8, 2016)

The purpose of the individual project is to deepen your understanding of a few selected standards for mathematical content from the Common Core State Standards for Mathematics (CCSSM) (a.k.a., the Wisconsin Mathematics Standards), related the standards to the developmental learning trajectories studied during the summer institute, and develop an aligned assessment that you can use with your students. You will have some time to work on the project during class and are then asked to complete it on your own and email it to the designated course instructor, Michelle, (douglams@milwaukee.k12.wi.us). A more detailed project sheet will be distributed and discussed in class.

7. Team Project: Administrator Information & Individual Implementation Goals (Due July 8, 2016)

The purpose of this project is to work as a school-based team to prepare CCSSM and Strong Start Math information that your team will share with your administrators when you return to school. It is expected that each team will schedule a session with their principal and other key administrators/staff in September (or earlier for Year-Round Schools). You will inform your principal of the initial work, learning, and expectations of the Strong Start Math project, and also share your own targeted individual implementation goals. The intent of this project is to begin a conversation with school administrators toward finding ways to strengthen the teaching and learning of mathematics in grades K-3 in your school. As a team, you will submit:

Part 1: Team “talking points” (information sheet) for use in your administrator meeting. (Completed as a team.)
Part 2: Individual Strong Start Math Implementation Goals. (Completed by each individual with team support.)

We ask that one designated team member compile all information into one report that can be submitted to the designated instructor, Michelle, as well as be given to your administrator. More details will be given in class and you will have some class time to work on the project, and will then complete it after the summer institute ends.

8. Reflective Nugget

You are expected to prepare a reflective nugget or story about your learning this summer in the Strong Start Math project. More details will be discussed in class.

9. Project Evaluation

As required by the U.S. Department of Education, this project must participate in a rigorous evaluation to include assessments of teacher learning, student learning, and classroom implementation. As part of your commitment to the Strong Start Math project you will complete required evaluation surveys and assessments and submit course/project related artifacts (e.g., documents, student work samples, reflections).

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<thead>
<tr>
<th>Course Requirement</th>
<th>Percent of Grade</th>
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<tr>
<td>1. Attendance</td>
<td>10% per unexcused absence</td>
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<td>2. Participation in Class Sessions</td>
<td>10%</td>
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<td>3. In-Class Tasks</td>
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<td>4. PRR: Professional Reading and Reflections</td>
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<td>5. Learning Log</td>
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<td>6. Individual Project: CCSSM and Learning Trajectory Assessment</td>
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<tr>
<td>7. Team Project: Administrator Information and Individual Implementation Goals</td>
<td>10%</td>
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<tr>
<td>8. Strong Start Math Nugget or Story</td>
<td>5%</td>
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<tr>
<td>9. Project Evaluation Completion</td>
<td>5%</td>
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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%
The following list contains expected course readings. Addition readings will be distributed in class, through email, or assigned as website links.

Askew, M. (2014). *Big Ideas in primary mathematics (draft)*.


**General Policies:** UWM policies regarding students with disabilities, religious observances, students called to active military duty, discriminatory conduct, academic misconduct, complaint procedures, grade appeal procedures, incompletes, and final exams can be found at: [http://www4.uwm.edu/secu/SyllabusLinks.pdf](http://www4.uwm.edu/secu/SyllabusLinks.pdf)

**Incompletes:** It is only under very unusual and extenuating circumstances that an “incomplete” will be granted. An "I" (incomplete) is assigned by the instructor if the student is unable to finish all the requirements for the course during the original semester of enrollment. If a grade of “Incomplete” is granted, a due date will be established for the required work. On that date a grade will be submitted based on currently submitted work, regardless. A grade of incomplete is appropriate only when the following conditions are present:

- The student has done satisfactory work in a substantial fraction of the course requirements prior to grading time and provides the instructor with evidence of potential success for the remaining work.
- Extraordinary circumstances, not related to the performance in the class, such as illness or family emergency, have prevented the student from finishing the course requirements on time.

**Grant or Course Specific Policies:**

**Graduate or Undergraduate Status:** You may not have dual tuition status within the same semester. You must have the same UWM classification, undergraduate or graduate, for all courses in which you enroll within the same semester, regardless. **You may not “change” classification after you have enrolled a course.** You would need to drop the course and then re-enroll under a different classification status, which may result in tuition charges for the dropped course.

**Off-Campus or On-Campus Status:** The grant for this project ONLY waives resident, off-campus tuition. Individuals concurrently enrolled in courses taught on-campus will need to pay segregated fees for all of their credits, including the grant course as the grant does not have funds allocated to pay segregated fees.

**Residency Status:** The grant for this project ONLY waives resident, off-campus tuition. It does not waive non-resident or out-of-state tuition. If you have this status, you are responsible for paying the differential in costs.

**Special-Tuition Pricing Courses:** If you concurrently enroll in regular UWM course and in special tuition pricing courses, such as through WSMI, you may have to pay the higher tuition rate for bot/all courses.

**Drop/Withdrawals:** If you choose to drop this course you must follow UWM procedures. You will be responsible for paying all drop, withdrawal, and other fees incurred. You are responsible for any or all tuition costs associated with your partial attendance as grants do not remiss tuition for courses you do not complete. Consult the current Schedule of Classes for the last day to drop a course within the current semester. Obtain a Change of Registration (ADD/DROP) form and get department or instructor approval to drop the class. Appeals to drop a course after the published deadline must be approved by the Office of Advising and Academic Services who are authorized to sign for the Dean of the School of Education. **If you owe fees or tuition, you will be billed directly from UWM and a hold will be placed on your records for any bills that are not paid.** For procedures and fee schedules, see [http://www4.uwm.edu/des/registration](http://www4.uwm.edu/des/registration)

**Snow Days or Other Class Cancellations:** Class will be cancelled if UWM has cancelled classes or the Milwaukee Public Schools has cancelled building activities.