Course Description:
This course focuses on the alliance of factual knowledge, procedural proficiency, and conceptual understanding. The parallels of learner development and the progressive nature of mathematics content standards are explored. Teacher candidates will study the elements necessary to help P-8 students achieve high-quality mathematics instruction.

More specifically, in accordance with SC State and National Standards, teacher candidates will explore numbers and operations, geometry, measurement, data analysis and probability, and algebra. Problem solving, reasoning, multiple representations, connections, and communication are stressed throughout the course coverage of these content areas, facilitating the development of deep conceptual understanding, within each of the five aforementioned mathematical content areas.

At the successful completion of the course, teacher candidates will be better equipped to teach their future elementary- and middle-school students in a variety of ways such that their future students understand mathematics procedures and why mathematics concepts make sense. In addition, they will have a better understanding of how mathematical understanding develops for children as they progress from preschool through middle school.

Required Text:
- Hardcover (used hardcover: $75.00) and paperback available - purchase 4th Edition

- Available online at www.nctm.org (100-day free trial)

Recommended Text:
- Used copies available online for about $3.00 (good resource, but not drawn on much in class)

Additional Sources: I will draw from additional texts and curricula during the semester. They will be cited appropriately when utilized.

Class Supplies:
South Carolina Mathematics Standards K-3 (online: http://ed.sc.gov/agency/se/Teacher-Effectiveness/Standards-and-Curriculum/Mathematics.cfm)

Common Core Standards for mathematics K-3 (online http://www.corestandards.org/Math)

NCTM Standards (both process and content) for K-3 (online http://nctm.org/standards)
SC site aligning SC Standards with Common Core Standards (online http://ed.sc.gov/agency/se/Teacher-Effectiveness/Standards-and-Curriculum/ELAandMathematicsCrosswalks.cfm)

Smarter Balanced Assessment Consortium (online http://www.smarterbalanced.org/)

**Course Requirements:**

**Demonstration of SOE Dispositions**

Examples of how dispositions are evident are provided in italics.

- **Belief that all students can learn,** *participation and attitudes expressed about students and learning*
- **Value and respect for individual differences,** *interactions in class discussions and participation in group work*
- **Value of positive human interactions,** *participation in class and in group work*
- Exhibition and encouragement of intellectual curiosity, enthusiasm about learning, and willingness to learn new ideas, *participation in class and group discussions and performance on assessments*
- **Dedication to inquiry, reflection, and self-assessment,** *participation in class and group discussions; performance on assessments (especially the reading and course reflections assignments)*
- **Value of collaborative and cooperative work,** *thoughtful, constructive critiques of others’ work, participation in class activities*
- **Sensitivity toward community and cultural contexts,** *participation in class and group discussions, tolerating, discussing, and respectfully listening to differing points of views*
- **Engagement in responsible and ethical practice,** *performance on assessments, class attendance, and participation in group activities*
- **Development of professional mastery over time,** *performance over time in writing, thinking, and expression of knowledge*

**Utilization of Computer Applications** (Available in the CofC managed computer labs located in JC Long, Library, and other campus sites. If unfamiliar with these applications, set up a time for tutoring with me.)

- Internet
- Word processing
- OAKs

Completion of all assigned readings and assignments **ON TIME.**

See Course Assignments below for detailed descriptions.

**Responsibility for ALL course content**

Including lecture, text, outside reading, handouts, research, etc.

**Responsibility for keeping up with grades and attendance**

If you miss a class, ask a classmate for the missed assignments and notes.

**Course Assignments:**

Due dates for course assignments, as well as scheduled exams, are listed in the tentative schedule at the end of the syllabus. Any changes will be announced in class. All assignments must be turned in during the class or to OAKS on the date due. Please make sure to pay attention to how each assignment should be submitted. If, for medical or serious personal reasons, an assignment is late, the instructor should be informed of the reasons. Otherwise, **each late course assignment – excluding classwork assignments and reading reflections - will receive a FIVE-PERCENT deduction per day that it is late. Classwork assignments and reading reflections will not be accepted late.** DO NOT give assignments to School of Education personnel. Assignments will NOT be accepted via email (unless specified explicitly).

All assignments must be typed and follow APA style guidelines.

Reading Reflection Entries (4)
To maximize the development of how to teach mathematics, it is imperative that TCs engage in their readings. Some of the readings will be addressed in class, but due to the vast body of pertinent literature in this field, some of the topics covered in the out-of-class readings will not. Therefore, to ensure active engagement with the readings and maximum knowledge gained from this course, TCs will be responsible for reflecting on readings throughout the semester.

There are four reading reflective entries due throughout the course of the semester. Entries must be submitted to the dropbox in OAKS by the start of class on the date indicated on the daily schedule. Failure to submit on time will result in a loss of credit.

Each entry should be labeled: “ENTRY #: CHAPTER or CHAPTER SECTIONS”
Each entry should have the following:
1. A succinct outline or summary of each chapter section: should include main ideas and/or examples not simply headings. (4 points)
2. A quotation from each section (properly cited – authors, year, p. #/pp. #/–)
3. Reflections on each of the quotations. How do they affect TCs thinking about teaching, learning, and/or future practices. Reflections should include descriptions of “AHA!” moments, topics for which TCs are confused, how topics connect to the 2-6 classrooms (refer to “Connections to the PreK-8 Classroom,” “Analyzing a Textbook Page,” and “Analyzing Student Work” segments), and topics that are of particular interest or concern to TCs (elaborating on why of interest or concern). DO NOT SUMMARIZE A QUOTATION; THIS IS NOT A REFLECTION. (quotations & reflections: 4 points)

Like with all written assignments, TCs should follow APA formatting (outlines are the exception aside from the citations). ½ point will be deducted if improper APA formatting or grammatical errors.

Homework Assignments (2)
In addition to reading reflections, to maximize the development of mathematical thinking, it is important that the TCs engage in the actual mathematics being described both in their readings and in class. As such, throughout the semester, there will be content-based mathematics problems given from the class text and materials provided during class. These will not be collected or graded but will assist TCs in deepening their understanding and recognizing what they do and do not understand related to the critical mathematics content taught to PK-8th-grade students. TCs are encouraged to work together, ask questions during class related to these HW problems, discuss these problems during office hours, etc. While these are not graded, they will serve as a study aid for the final exam.

Classroom Explorations (7)
Throughout the semester, TCs will be asked to participate in and complete classroom explorations related to the content of that day’s class. These explorations will help deepen TCs understanding of the given content by way of problem-based, peer-scaffolded learning opportunities, rather than traditional didactic instruction. Too, they will help TCs learn to communicate and collaborate mathematical ideas, areas of confusion, etc. Because these explorations depend upon peer scaffolding and communication, to receive credit, TCs must be present.

Pre-Classwork Assignments (6)
Throughout the semester, TCs will be asked to complete assignments necessary for class discussion. Each assignment is indicated on the daily schedule. If materials are required for completing the assignments, they will be given the class prior to the assignment’s due date or posted on OAKs.

Article Critique
TCs will be asked to write a one-page critique of an article from Teaching Children Mathematics. The argument of the critique should focus on important contemporary issues in mathematics education relevant to schools in South Carolina. Teaching Children Mathematics (TCM) is an official journal of the National Council of Teachers of Mathematics (NCTM) and a forum for the exchange of ideas in curriculum, instruction, learning, and teacher education. The primary audience of TCM is elementary-school teachers, and the journal contains many articles with ideas that are directly applicable to the classroom. TCs with an interest in upper-elementary- and middle-grades education also should look at Mathematics Teaching in the Middle School (MTMS) and are welcome to complete a critique from an article in this
journal. TCs may join NCTM online at http://www.nctm.org/membership/content.aspx?id=7618. Both journals are available for review online for NCTM members. If you do not wish to become a member (which I encourage you to eventually do), the journals are available IN the library.

The objective in having TCs look at the journals is to help them gain familiarity with them as resources for teaching elementary- and middle-school mathematics. They are to critique an article from either TCM or MTMS. The critique should be from a "main" article. (Editorials, reviews, and other short essays are informative, but I want TCs to look at more extensive articles.) The May issue each year contains a subject index, so I encourage TCs to look at this in order to select an article on a topic that is of particular interest. TCs should follow the explicit directions under the “Grading Criteria and Directions” on OAKs. TCs can choose an article that is connected to their standard for the Standards Project. Finally, TCs should attach a copy of the article.

Tests: Midterm & Final
TCs will be expected to complete two tests: a midterm and final. Material on these summative assessments comes from (1) in-class lectures, discussions, and explorations/activities and (2) out-of-class readings and HW assignments. (Test dates are indicated on the schedule.)

Standards Project
In groups of 4, TCs will sign up to examine one of the five NCTM Content Standards (number & operations, measurement, geometry, data analysis & probability, and algebraic thinking) throughout the first three NCTM grade bands (Early Childhood Grade Band, covering PK-2; Elementary Grade Band, covering grades 3-5; Middle Grade Band, covering grades 6-8). TCs will also examine the SC and Common Core Standards that align with their NCTM Content Standard. In order to fully examine their content standard, I expect each group to:

- Familiarize themselves with the NCTM, SC, and Common Core Standards, understanding the expectations, objectives, indicators, etc. for each grade or grade band. (The language and breakdown is different for each set of standards.)
- Through this familiarization, articulate how children develop their mathematical thinking with regard to the specified content standard.
- Describe clearly how the standard translates into classroom practice. This is to be achieved in three ways:
  - (2) reviewing and obtaining appropriate activities from either the journal Teaching children mathematics (TCM) or the journal Mathematics Teaching in the Middle School (MTMS) (must go to library for this – not all issues available online – 2004 to present), and
  - (3) interviewing/observing and obtaining appropriate activities from practicing teachers. If this cannot be achieved due to lack of access to the appropriate grade-level teacher, TCs, WITH PERMISSION, may retrieve these activities from the journals as well.

- Because “the mathematical Content and Process Standards…are inextricably linked,” describe how the Process Standards are integrated into implementations of the content standard (NCTM, 2000, p. 7).
- Each group will be responsible for the following as it relates to the group’s standard. (TCs can either divvy these up or collect and work on together. Whichever, in the final write up, TCs must indicate who was responsible for each activity so that I can accurately assess each.) TCs may use activities from article critiques if appropriate.

TCs must obtain the following TWO Early Childhood (PK – 2) activities:
(1) PK-K activity from a teacher or from TCM; and
(2) Grades 1-2 activity from a teacher or from TCM

TCs must obtain the following FOUR Elementary (2 – 5) activities:
(1) Grades 2-3 activity from a teacher;
(2) Grades 2-3 activity from TCM;
(3) Grades 4-5 activity from a teacher; and
(4) Grades 4-5 activity from TCM

TCs must obtain the following TWO Middle Grades (6 – 8) activities:
(1) Grades 6-7 activity from a teacher or from MTMS; and
(2) Grades 7-8 activity from a teacher or from MTMS

The intent of this project is to familiarize TCs with the Standards, to help them understand how to implement standards into classroom practice (better understanding what makes a good standards-based, well-aligned assignment), and to help them understand how children develop their mathematical thinking from PK through grade eight. Pragmatically, I want TCs to begin collecting detailed activities that span the Content Standards and grade bands so when they leave my class they do not have to start from scratch.

At the completion of our class coverage of a given content standard (number & operations, measurement, geometry, data analysis & probability, and algebraic thinking), the pair/group which was assigned to that content area will:

- Teach a lesson on the development of student thinking from PK-8 in that given area. (In teaching this, they may consider having the class attempt to order particular expectations/indicators, ask questions about what classmates think fall within the content standard, provide a timeline of what is covered in each grade, etc.). TCs are expected to reveal how the NCTM, SC, and Common Core Standards differ in their descriptions of the development of mathematical thinking. Last semester, a group used a Venn diagram to convey this. It was excellent. I DO NOT WANT TO SEE THE STANDARDS CUT AND PASTED INTO PPT SLIDES.
- During the lesson, the group will demonstrate three activities – (1) PK-1st, (2) 2nd-5th, and (4) 6th-8th grade – exemplifying to their classmates the development of mathematical thinking within the given content area. Each of the group members should contribute equally in the facilitation of the lessons. This will require some out-of-class preparation.

Each group member will have the opportunity to assess the contributions of the other group members. Both the demonstration and peer assessment will be figured into each TC’s Standards Project grade.

Note that while not indicated on the schedule, TCs should (1) work on this project throughout the semester and (2) read chapters three through six in the Principles and standards for school mathematics.

Participation and Attendance

Participation
During class, there will be a number of activities in addition to the explorations. TCs will be expected to participate in these activities and in general class discussions. In order to earn credit for classwork activities and discussions, TCs must be present. There are 28 scheduled class sessions, excluding the final exam session: 7 of those sessions are devoted to Explorations for which TCs will earn course points; 1 of those sessions is devote to taking the midterm; for the remaining 20 sessions, general participation will be assessed at ½ point each session.

Participation points will be deducted for cell phone use in class and disrespectful conduct. If an emergency, TAs may be excused to the hallway to talk or text. Otherwise, I should not see fingers typing on phones underneath tables.

TEDU Attendance Policy

Excessive absences (i.e., more than 15% - approximately 5 hours/4 classes) may result in receiving a “WA/F.” Students will be tardy if they arrive 10 minutes after class has started. Three tardies result in one absence. Students will be absent if they arrive after 20 minutes or if they leave class early. Regarding being tardy or having to leave class early, exceptions will be made on an individual basis, but students must speak with me about extenuating circumstances for such exceptions. Regarding absences, if a student exceeds allowable absences due to extenuating circumstances beyond the student’s control, a panel of professors from that semester will review the circumstances and make a final decision.
SNAP students, if they wish special accommodations, must see the professor within the first two weeks of the course or as soon as they find out about potential accommodations if determined mid semester. Athletes who will miss class due to athletic events must see the professor within the first two weeks of the course and submit athletic schedule for the semester, identifying classes that will be missed. No other absences will be allowed for athletes who miss the maximum allowable absences due to athletic events.

Written and Oral Communication
TCs are expected to use correct grammar at all times. Points will be deducted on written assignments for grammatical errors. All references must follow the American Psychological Association (APA) Guidelines for Term Papers. For assistance with APA, guidelines and examples can easily be found on the web. The Writing Lab is located on the first floor of Addlestone Library (Monday through Thursday 9:00 am to 9:00 pm and Friday 9:00 am to noon). Further, it is imperative that TCs use correct grammar in all oral communication, especially during field experiences. Classroom teachers, student peers, and I will collaborate to eliminate all oral grammatical errors, using an approach of constructive criticism.

Evaluation
It will be possible to earn 200 points during the semester. They will be distributed as follows:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Reflections (4)</td>
<td>8 points each, 32 points total (16%)</td>
</tr>
<tr>
<td>Classroom Explorations (7)</td>
<td>4 points each, 28 points total (14%)</td>
</tr>
<tr>
<td>Pre-classwork Assignments (6)</td>
<td>4 points each, 24 points total (12%)</td>
</tr>
<tr>
<td>Article Critique</td>
<td>6 points (3%)</td>
</tr>
<tr>
<td>Midterm</td>
<td>30 points (15%)</td>
</tr>
<tr>
<td>Standards Project</td>
<td>40 points (20%)</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30 points (15%)</td>
</tr>
<tr>
<td>Participation and Attendance</td>
<td>10 points (5%)</td>
</tr>
</tbody>
</table>

Evaluation Scale

<table>
<thead>
<tr>
<th>Letter Grades</th>
<th>Percentage Range</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100%</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>91-92%</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>89-90%</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>86-88%</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>84-85%</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>82-83%</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>79-81%</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>77-78%</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>75-76%</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>72-74%</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>70-71%</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>≤ 69%</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Respectful Conduct
TCs are expected to be respectful and considerate of one another. Cell phones should be turned off while in class. Laptops should only be used in class if they are facilitating the development of mathematical thinking; if they appear to be a distraction, I will ask that they be put away. Disrespectful conduct will result in a loss of participation points.

CofC Honor System
Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.
Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration—working together without permission—is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

ADA Accommodations
In compliance with the Americans Disabilities Act (ADA), all qualified students are entitled to “reasonable accommodations.” Any students requiring accommodations should contact the Center for Disability Services (953-1431) and provide me with documentation of needed accommodations within the first two weeks of the course or as soon as they find out about potential accommodations if determined mid semester.

Course Objectives
All teacher preparation programs in the College of Charleston’s School of Education (SOE) are guided by a commitment to the conceptual framework of “Making the Teaching and Learning Connection.” Three elements of teacher competency (ETC) are fundamental to this framework: teachers must (1) understand and value the learner, (2) know what and how to teach and assess within a conducive learning environment, and (3) understand themselves as professionals. In addition, these competencies are foundational to the learning and assessments within this course, facilitating the development of knowledge, skills, and dispositions necessary for becoming an effective teacher.

Below are the specific end-of-course outcomes related to these teacher competencies. They are derived from the standards set forth by the National Council of Measurement in Education (NCME) and relate to those of the (1) School of Education (SOE), (2) National Council for Accreditation of Teacher Education (NCATE), (3) National Association for the Education of Young Children (NAEYC), (4) National Middle School Association (NMSA), and State Standards for Teacher Education (SC). They, therefore, indicate the expectations for teacher candidates within the School of Education, early childhood teachers, elementary-grades teachers, and middle-grades teachers.

1. Teacher candidates (TCs) will develop the understanding of how students learn to construct mathematical ideas from the concrete early childhood experiences through the development of thinking abilities in early elementary grades.
   SOE I; NCATE 1; NAEYC 4b

2. TCs will articulate a vision of school mathematics that supports access of all students to a curriculum that emphasizes important mathematical concepts; effective and engaging research-based instructional practices; and high expectations with appropriate accompanying accommodations.
   SOE II, III; NCATE 2d, 3d; NAEYC 4b, 5

3. TCs will convey an appreciation for the discipline of mathematics including its history and the contributions of diverse cultures to the field.
   SOE II, VII; NCATE 2d; SC 4 (contextual teaching and diverse learning styles)
4. TCs will articulate the knowledge that mathematics curriculum must be coherent and focused on important useful concepts that are connected within the discipline and across disciplines.
   SOE II; NCATE 2d, 2i, 3a; NAEYC 5; NMSA 4.K2, SC 4 (contextual teaching)

5. TCs will recognize the importance of the role of student ideas, interests, and needs in the design, implementation, and evaluation of mathematically-based learning experiences.
   SOE I; NCATE 2d, 3a, 3d; NAEYC 1a, 5; NMSA 3.K5, 3.D4, 4.P3; SC 4 (diverse learning styles; cooperative teaching)

6. TCs will demonstrate an understanding of the need for a variety of instructional strategies to effectively address developmental, ability and learning style needs of PK-8 students exhibiting diversity in its many forms.
   SOE III; NCATE 4; NAEYC 1, 4b; NMSA 1.P5, 1.P10, 4.K3, 5.K2; SC 4 (diverse learning styles)

7. TCs will develop the knowledge of, and dispositions that value, ongoing, systematic, formal, and informal assessment as an integral part of instruction that guides and enhances learning.
   SOE VI; NCATE 4; NAEYC 3, 4b; NMSA 1.P6, 5.K8, 5.D5, 5.P4, 6(all)

8. TCs will communicate about and through mathematics verbally and in writing using both everyday language and mathematical representations.
   SOE II; NCATE 2d, 3e; NAEYC 4b; NMSA 4.K4, 4.D4, 4.P5

9. TCs will demonstrate knowledge of the organization of the content standard areas of number and operations, algebra, geometry, measurement, data analysis and probability within the PK-8 mathematics curriculum as prescribed by the NCTM and the SC Standards.
   SOE II; NCATE 2d; NAEYC 4b, 5; NMSA 4, 6.K5; SC 7

10. TCs will demonstrate the value and integrative nature of the process standards of problem solving, reasoning, communication, connections, and representations within the PK-8 mathematics curriculum as prescribed by the NCTM and the SC Standards.
    SOE II; NCATE 2d, 3c; NAEYC 4b, 5, 4c; NMSA 4, 5.K3, 5.P2, 6.K5; SC 4 (contextual teaching); SC 7

11. TCs will demonstrate competency in, and an understanding of the value of, a breadth and depth of mathematical knowledge and skills that extend beyond the level for which the TC is preparing.
    SOE II; NCATE 2d

**Course Alignment with Common Core Standards**

**College and Career Readiness Mathematics Practice Standards**
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**College and Career Readiness ELA Standards**

**Reading.**

*Key ideas and details.*
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

   *Craft and structure.*

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

   *Integration of knowledge and ideas.*

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

   *Range of reading level and text complexity.*

10. Read and comprehend complex literary and informational texts independently and proficiently.

   *Writing.*

   *Text types and purposes.*

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

   *Production and distribution of writing.*

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

   *Range of writing.*

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

   *Speaking and Listening.*

   *Comprehension and collaboration.*

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.

2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

3. Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.

   *Presentation of knowledge and ideas.*

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

   *Language.*

   *Conventions of Standard English.*

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings &amp; Assignments to be completed for the given class</th>
</tr>
</thead>
</table>
| 8/21    | ❖ Course overview  
❖ Beliefs about mathematics  
❖ “Basics” in mathematics that all children must know: strands of mathematical proficiency  
❖ Understanding how students learn mathematics  
❖ Go over how to retrieve each set of standards: sign up for standards project | Read the summary (pp. 1-14) of “Education for Life and Work” (NRC, 2012) – How does this impact you as future teachers? What did you gain from reading this as a future teacher?  
❖ Read “The Having of Wonderful Ideas” (Duckworth, 1996) – How does this impact you as a future teacher? What insight does this give you about teaching mathematics? How might this differ from how you were taught mathematics?  
❖ Print out and bring an overview of each CC, SC, and NCTM for grades K-8 to class (you will use throughout the year) |
| 8/26    | ❖ Common Core, SC, and NCTM Standards – Scavenger Hunt  
❖ 21st Century Skills |  |
| 8/28    | ❖ Problem solving: Exploration 1  
❖ Reasoning  
❖ Communicating  
❖ Give HW 1 problems | ❖ O’Daffer: Ch. 1  
❖ O’Daffer: 2.1  
❖ Begin working on RR 1: Chs. 2 &3 |
| 9/2     | ❖ Sets and whole numbers | ❖ O’Daffer: 2.2 and 3.3  
❖ Have articles and teachers chosen for your standards project (turn in to me) |
| 9/4     | ❖ Addition and subtraction of whole numbers | ❖ O’Daffer: 2.3 and 3.4  
❖ Pre-classwork 1: Read “Multicultural Mathematics;” take notes on and be prepared to explain the procedures for your assigned operation |
| 9/9     | ❖ Multiplication and division of whole numbers | ❖ O’Daffer: 2.3 and 3.4  
❖ Pre-classwork 2: Complete Ch. 4 Handout |
| 9/11    | ❖ Numeration systems | ❖ O’Daffer: 2.4  
❖ O’Daffer: 3.1 and 3.2  
❖ RR 1 (Chs. 2 & 3) Due to OAKs by 8AM |
| 9/16    | ❖ Numeration cont.  
❖ If time, XMANIA  
❖ Independently: Mental math, Estimation and rounding (included in RR 1) | ❖ O’Daffer: 3.1 and 3.2  
❖ RR 1 (Chs. 2 & 3) Due to OAKs by 8AM |
| 9/18    | ❖ Factors and divisibility  
❖ Prime and composite numbers  
❖ GCF and LCM: Exploration 2  
❖ If time: Work on HW 1 problems | ❖ O’Daffer: Ch. 4  
❖ Pre-classwork 2: Complete Ch. 4 Handout |
| 9/23    | ❖ Integers  
❖ Addition and subtraction with integers (5.1) | ❖ O’Daffer: Ch. 5  
❖ Pre-classwork 3: Take notes on the models for assigned integer operation; |
<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/25</td>
<td>Multiplication &amp; division with integers (5.2)</td>
<td>be ready to demonstrate to class</td>
</tr>
<tr>
<td>9/30</td>
<td>Rational number system</td>
<td>Work on HW 1</td>
</tr>
<tr>
<td>10/2</td>
<td>Fraction operations</td>
<td>Work on HW 1</td>
</tr>
<tr>
<td>10/7</td>
<td>Multiplication and division with fractions</td>
<td>RR 2 (just 6.2-6.5) Due to OAKs by 8AM</td>
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<tr>
<td>10/9</td>
<td>Fraction operations</td>
<td>Review for midterm</td>
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<tr>
<td>10/14</td>
<td>Fall Break</td>
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<td>10/16</td>
<td>Midterm</td>
<td>Review for midterm: O’Daffer Chs. 1-6</td>
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<tr>
<td>10/21</td>
<td>Proportional reasoning, ratio, and percent:</td>
<td>O’Daffer: 7.1, 7.2, &amp; 7.3</td>
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<tr>
<td>10/23</td>
<td>Proportional reasoning, ratio, and percent:</td>
<td>RR 3 (7.1 – 7.3) Due to OAKs by 8AM</td>
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<tr>
<td>10/28</td>
<td>The Development of “Number and Operations” Thinking</td>
<td>Number and Operations Presentation</td>
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<tr>
<td>10/30</td>
<td>Data analysis</td>
<td>O’Daffer: Ch. 8</td>
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<tr>
<td>11/4</td>
<td>Probability</td>
<td>O’Daffer: 9.1, 9.2, and 9.4</td>
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<td>11/6</td>
<td>The Development of “Data Analysis and Probability” Thinking</td>
<td>Data Analysis and Probability Presentations</td>
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<tr>
<td>11/11</td>
<td>Geometry &amp; Measurement</td>
<td>O’Daffer: 10.1, 11.1, and 11.2 (Skim other parts of chapter at your convenience – vocabulary that you may want to review)</td>
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<tr>
<td>11/13</td>
<td>The Development of “Geometric” Thinking</td>
<td>Geometry Presentations</td>
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<td>11/18</td>
<td>Geometry &amp; Measurement</td>
<td>O’Daffer: Ch. 12</td>
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<tr>
<td>11/20</td>
<td>The Development of “Measurement” Thinking</td>
<td>RR 4 (Assigned sections of Chs. 10, 11, and all of 12) Due to OAKs by 8 AM</td>
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<tr>
<td>11/25</td>
<td>Algebra: Math innovations</td>
<td>Measurement Presentations</td>
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<td></td>
<td>FB Order of Operations</td>
<td>Work on HW 2 and Final Project</td>
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<tr>
<td>11/27</td>
<td>Thanksgiving Break</td>
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<tr>
<td>12/2</td>
<td>The Development of Algebraic Thinking</td>
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<td>12/6</td>
<td>NO CLASS</td>
<td>Standards Projects Due to my mailbox by NOON</td>
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<tr>
<td>EXAM WEEK</td>
<td>Final Exam</td>
<td>STUDY</td>
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<td></td>
<td>12/9: 8-11 am (Section 002)</td>
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<td>12/9: 12-3 pm (Section 003)</td>
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Pre-classwork and Classroom Exploration Completion Sheet

Please retain until end of the semester. 52 points (26%) of your grade rely on this document.

<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment</th>
<th>Initialed for Completion</th>
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<tbody>
<tr>
<td>8/28</td>
<td>Exploration 1</td>
<td>✓</td>
</tr>
<tr>
<td>9/9</td>
<td>Pre-Classwork 1</td>
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<td>9/18</td>
<td>Pre-Classwork 2</td>
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<tr>
<td>9/18</td>
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<td>10/23</td>
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<tr>
<td>11/18</td>
<td>Exploration 7</td>
<td>✓</td>
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Total Number of Completed Pre-Classwork Assignments and Classroom Explorations /13

Total Combined Points for Pre-Classwork Assignments (6) and Classroom Explorations (7) – Each worth 4 points

\[ \text{ABOVE} \times \frac{4}{4} = \frac{52}{52} \text{ points} \]