Instructor: Beth Lloyd, Ph.D.
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Office Hours: Mon: 9-9:45 am & 11:15 am - 4 pm; Wed: 9-9:45 am & 3-4 pm; or by appointment

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. At the successful completion of the course, teacher candidates will be equipped to teach their future elementary- and middle-school students in a variety of ways such that their students understand mathematics procedures and why mathematics concepts make sense.

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

- Available online at www.nctm.org (120-day free trial)

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

Additional Sources: Additional readings and/or information will be drawn from, but not limited to, the following sources.


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
- Email

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 syllabus. Any changes will be announced in class. All assignments must be turned in during the class on the date due. 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 and homework assignments - will receive a five-percent deduction per day that it is late. Classwork and homework assignments will not be accepted late. DO NOT give assignments to School of Education personnel. Assignments will NOT be accepted via email (unless specified explicitly).

Reading and Class Reflections
To maximize the development of mathematical thinking, it is important that the 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, TCs will be responsible for reflecting on readings and activities throughout the semester. These reflections should include descriptions of “AHA!” moments, topics for which TCs are confused, topics that are of particular interest or concern to TCs, and constructive feedback for me about the usefulness of activities and readings. This is an opportunity for me (1) to learn from the TCs and (2) to address any misconceptions or problems that they may have regarding the content of this course. I will collect reflections four times throughout the course of the semester (due dates indicated on the schedule). With each collection, TCs should complete at least one reflection, containing reflections and insights from the readings and class activities. Reflections from the readings should include quotations from sections throughout the beginning, middle, and end of the reading. Each entry should be between one and three typed and doubled-spaced pages. TCs may handwrite those items difficult to type, such as pictures, long numeric expressions, diagrams, etc. Please follow the guidelines indicated on the rubric and staple a rubric to the front or back of each reflection submitted for a grade.
Classwork and Homework Assignments
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, online resources, and materials provided during class. I will collect classwork/homework four times throughout the semester (due dates indicated on the schedule). Each collection should include the classwork and homework assignments assigned up to the due date. (I will not collect every classwork activity, but I will be explicit about the activities that should be included in each section.) Depending on the number of problems per collection, I may spot check. Additionally, in order to earn credit for classwork activities, TCs must be present on the day of the classwork activities being graded. These four classwork/homework collection will not be accepted late.

Article Critique
TCs will be asked to write a 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 decide not to join NCTM, you must access the journals (past 1994) by going to 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 -- one that is at least three pages and focuses on an issue. (Editorials, reviews, and other short essays are informative, but I want TCs to look at more extensive articles.) TCs may select any main article from the last three years. 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. The critique should be between two and three pages, word processed, and double spaced; it should focus on a (or the) major issue raised in the article. TCs should clearly state the article under review, including the volume and issue number of the journal. Finally, TCs should attach a copy of the article. (The due date is indicated on the schedule.) Please follow the guidelines indicated on the rubric and staple a rubric to the front or back of each reflection submitted for a grade.

Two people may discuss and critique the same article, but each person is responsible for writing his/her own paper. Please indicate on WebCT which article you (and your partner if applicable) will be critiquing. Please pay attention to those who have posted on WebCT prior to you, and DO NOT choose the same article as a pair that has already posted. This is to save me from reading the same critique 22 times☺

When reading the critiques, I will look for the following three components:

- A brief summary of the message the author wishes to convey (Fully describe key points and omit lesser points; too many points leave the reader wondering which of those are the most important)
- Opinions about the strengths and/or weaknesses of the message (Make distinctions between the author’s opinions/comments and TC’s reactions/comments/opinions)
- Description of how the TC will think or teach differently after reading the article (or reasons why the article will have no effect on your teaching)

Due: March 4th

Tests
TCs will be expected to complete three tests, two in class and one out of class. Material on these summative assessments comes from (1) in-class lectures, discussions, and activities and (2) out-of-class readings and assignments. (Test dates are indicated on the schedule.)
Standards Project
TCs will sign up to examine one of the five NCTM Content Standards throughout the three first grade bands (PK – 2, 3 – 5, and 6 – 8). (I would like an even distribution of TCs covering each Content Standard.) To fully examine the Standard and how it progresses throughout the grade bands, I expect TCs to:
- Clearly explain the Standard and expectations for all three grade bands.
- Describe clearly how the Standard and expectations translate into classroom practice.
- Interview (and observe if you would like) a teacher from each of the grade bands in order to learn about classroom activities that they think work best in addressing these expectations and Standard.
- Of the activities that they learn from these interviews, choose one per grade band. Provide a detailed description of the three activities, giving step-by-step procedures for how to implement them each. Make certain to explain why these activities appropriately meet the given expectations and Standard.
- Because “the mathematical Content and Process Standards…are inextricably linked,” for each of the activities, describe how the Process Standards are integrated into the three activities (NCTM, 2000, p. 7).

TCs are expected to submit both a hard and electronic copy of their projects. At the conclusion of the semester, I will create a PBWorks site for all electronic submissions. The intent of this project is to familiarize TCs with the National Standards and to create a collection of detailed activities that span the Content Standards and grade bands. Projects are to be completed and submitted by the last day of class: April 22nd.

Each Standards group will choose three activities – one from each grade band – to demonstrate to the entire class on the date indicated on the schedule. While not everyone’s lessons will be chosen from the group, each of the group members should contribute equally to facilitating the lessons. This will require some out-of-class preparation. Upon completion of the class demonstrations, each group member will 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
During class, there will be a number of activities. TCs will be expected to participate in these activities (reflected in the classwork assignments) and in general class discussions.

EDEE Attendance Policy
Excessive absences (i.e., more than 15% - approximately 5 hours/2 classes - may result in receiving a “WA/F.”) Students will be tardy if they arrive in class within the first 20 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.

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. Electronic guidelines may be found on WebCT. 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 450 points during the semester. They will be distributed as follows:

- Reading and Class Reflections (4) 20 points each, 80 points total (18%)
- Classwork and Homework Assignments (4) 20 points each, 80 points total (18%)
- Article Critique 50 points (11%)
- Tests (3) 35 points each, 105 points total (23%)
- Standards Project 85 points (19%)
- Participation and Attendance 50 points (11%)

**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>91-100%</td>
<td>4.0</td>
</tr>
<tr>
<td>B+</td>
<td>89-90%</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>84-88%</td>
<td>3.0</td>
</tr>
<tr>
<td>C+</td>
<td>82-83%</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>77-81%</td>
<td>2.0</td>
</tr>
<tr>
<td>F</td>
<td>≤76%</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.

**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. 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.

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 and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a PDA), 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.

**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 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), and (4) National Middle School Association (NMSA). 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 abstract thinking abilities in young adolescence. 
SoE I; NCATE 1; NAEYC 4b; NMSA 1.K1, 1.P2, 1.P4, 5.K4

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; NMSA 1.D3, 5.D7

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

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 4b; NMSA 4.K2

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 4b; NMSA 3.K5, 3.D4, 4.P3

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

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, 3c; 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; NMSA 4, 6.K5

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, 4c; NMSA 4, 5.K3, 5.P2, 6.K5

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; NMSA 4.K1, 4.P2
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings (NCTM, &amp; O’Daffer) &amp; Assignments to be completed for the given class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/14</td>
<td>Course overview, Beliefs about mathematics, Brief history of mathematics education, “Basics” in mathematics that all children must know, Understanding how students learn mathematics, SC and NCTM Standards</td>
<td></td>
</tr>
<tr>
<td>1/21</td>
<td>Problem solving, Reasoning, Communicating, Sets and whole numbers</td>
<td>Review SC and National Standards online, O’Daffer: Ch. 1 and 2.1</td>
</tr>
<tr>
<td>1/28</td>
<td>Addition and subtraction of whole numbers, Multiplication and division</td>
<td>O’Daffer: 2.2, 2.3, 3.3, and 3.4, Reflection #1 Due</td>
</tr>
<tr>
<td>2/4</td>
<td>Numeration systems, Number sense, mental math, estimation, and rounding</td>
<td>O’Daffer: 2.4, 3.1, 3.2, and Ch. 4, CW/HW #1 Due</td>
</tr>
<tr>
<td>2/11</td>
<td>Test #1, Assessment</td>
<td>Review for Test #1</td>
</tr>
<tr>
<td>2/18</td>
<td>Integers, Addition and subtraction with integers, Multiplication &amp; division with integers</td>
<td>O’Daffer: Ch. 5, Reflection #2 Due</td>
</tr>
<tr>
<td>2/25</td>
<td>Rational number system, Converting repeating decimals to fractions (p. 360), Addition and subtraction with fractions, Begin discussion of multiplication and division with fractions</td>
<td>O’Daffer: Ch. 6, CW/HW #2 Due</td>
</tr>
<tr>
<td>3/4</td>
<td>Multiplication and division with fractions, Go over the jigsaw activity (an out-of-class activity that will count toward the participation grade)</td>
<td>O’Daffer: Ch. 7, Article Critique Due</td>
</tr>
<tr>
<td>3/11</td>
<td>SPRING BREAK – NO CLASS</td>
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<tr>
<td>3/18</td>
<td>Jigsaw activity: Decimals, proportional reasoning, ratio, and percents, Number and Operations Activity Demonstrations</td>
<td>CW/HW #3 Due, Number and Operations Activities</td>
</tr>
<tr>
<td>3/25</td>
<td>Test #2, Data analysis</td>
<td>Review for Test #2, O’Daffer: Ch. 8</td>
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<tr>
<td>4/1</td>
<td>Probability, Data Analysis/Probability Activity Demonstrations</td>
<td>O’Daffer: Ch. 9, Reflection #3 Due, Data Analysis/Probability Activities</td>
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<tr>
<td>4/8</td>
<td>Geometry, Geometry Activity Demonstrations</td>
<td>O’Daffer: Ch. 10, 11.1, and 11.2, CW/HW #4 Due, Geometry Activities</td>
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<tr>
<td>4/15</td>
<td>Measurement, Measurement Activity Demonstrations</td>
<td>O’Daffer: Ch. 12, Reflection #4 Due, Measurement Activities</td>
</tr>
<tr>
<td>4/22</td>
<td>Algebra, Algebra Activity Demonstrations</td>
<td>O’Daffer: Ch. 13, Algebra Activities, Standards Project Due</td>
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