Instructor: Nenad Radakovic, Ph.D.  
Office: School of Education, Health, and Human Performance, Room 222  
Office Phone: 953-4837  
Email: radakovicn@cofc.edu (Best way to contact me)  
Office Hours: Mon: 10-12; Tues: 10-12; Wed: 4-5; or by appointment  
Email Hours: On weekdays (Mon-Fri): latest check and response 5 pm; Sun: 1-5 pm  

Course Description:  
This course focuses on the knowledge, dispositions, and performances necessary for quality mathematics education. Emphasis is on developmentally appropriate instructional strategies linked to the grades 2 to 8 content and process standards. Active learning, lesson planning, ongoing and worthwhile assessment, and informed teacher decision-making are major components.

Required Text:  

Recommended Text:  

Class Resources:  
Common Core Standards for mathematics K-8 (online http://www.corestandards.org/Math)  
NCTM Standards (both process and content) for K-8 (in recommended text or online at http://nctm.org/standards if a member)  
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 AND Responsibility for Keeping up with Grades and Attendance

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

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 or on the class news page on OAKS. All assignments must be completed on time for any credit to be received. If, for medical or serious personal reasons, an assignment is late the instructor should be informed of the reasons and the potential for late submission and credit may be considered. Please **DO NOT** give assignments to School of Education personnel. Assignments will **NOT** be accepted via email (unless specified explicitly).

**Tests (Test 1 and Test 2):**

TCs will be expected to complete two in-class tests. Material on these assessments comes from (1) in class warm-ups, lectures, discussions, and activities; (2) out of class readings and assignments; and (3) Curriculum Standards.

**Weekly Assignments:**

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.

Each weekly assignment will be comprised of three sections: A. Required readings; B. “Come Prepared”; and C. Written Assignment. Your written assignment should be posted on OAKS **before the start of the class.**

**Typically, during the class indicated on the daily schedule, TCs will discuss the “Come Prepared” section with their peers and/or with me and add insightful comments to their work as they see fit. Forms of assessment will vary related to this assignment (individual conferences, collection of responses and reflections per individual, collection per group, checklist based on responses during class discussion, site checking for completion, or open notes/closed readings quiz).**

**If late to class or not in class on the day they are due, TCs will not receive credit for the “Come Prepared” section of the assignment.**

**Math Trail Assignment:**

TCs will take part in a math trail in Charleston and CofC campus. The details of the math trail assignment will be posted on OAKS.
Teaching Children Mathematics (TCM) Lesson Plan 1:
TCs will choose an activity or lesson from TCM. TCs are to construct one full lesson plan based on this activity. Chosen activities/lessons should be problem-based, student centered, and truly enhance learning. Additionally, chosen activities/lessons should not be part of traditional, direct instruction or drill and practice. Given that TCs will be assessed on the quality of their lessons rather than where they came from, TCs likely will need to adapt what is found to make sure the quality of the tasks meet the criteria of the provided lesson plan. TCs’ lessons should reflect the characteristics of effective lessons outlined in class. TCs must choose a grade level from PK-3 and can assume that students have access to ample resources.

The assignment will have 3 major components: the creation of a lesson, providing feedback to others, and the revision of one’s own lesson based on peer feedback.

Teaching Children Mathematics (TCM) Lesson Plan 2:
TCs are to find an activity or lesson from TCM (or another NCTM resource) that fits their assigned content area and grade level that is not being used by another TC for the TCM lesson planning project. There are to be no duplicates in activities. TCs are to write a complete lesson plan using this activity. The lesson plan should contain all of the components of the EHHP lesson plan format provided on OAKS and discussed in class.

TCs will present their lesson in class, as well as provide copies for fellow TCs.
Detailed instructions about the assignment will be posted on OAKS and discussed in class.

Curriculum Analysis Final Project:
TCs will be assigned a unit from a mathematics curriculum to analyze and revise to address a certain content area within the CCSS and SC Standards. As a group or in pairs, they will: (1) analyze the entire unit, guided by the questions below; (2) revise and/or replace one lesson within the unit, choosing the lesson that is least effective in meeting the standards in a problem-based manner based on the analysis; (3) address what should be revised in the entire unit.

(1) Analyze the entire unit, looking at each lesson and the arc of the lessons:
Within your analysis, address the following questions as they relate to the nature of classroom tasks, the social culture of the classroom, and equity and accessibility:

- Do the tasks require students to think as opposed to simply practice?
- Do the tasks encourage reflection, communication, and/or cooperative learning?
- Are the tasks engaging and interesting enough that students want to pursue them? Specifically, are the tasks intrinsically motivating?
- How well do the tasks take into account related tasks from previous experiences, both in and out of school?
- Is the required thinking mathematical as opposed to simply rote learning?
- Are the Common Core and SC mathematics standards accurately aligned? If not aligned, what standards (both practice and content) align with each lesson within the given unit? What standards are missing?
- To what extent does the text provide enough options to make it likely that all children will be successful? How are the needs of students (including special education, gifted, English language learners, and students with special needs) addressed?
- Are the suggested accommodations appropriate for all students?
- What is done to help the teacher make sure that every student contributes?

(2) Revise and/or replace one lesson within the unit
Based on the analysis, choose the lesson that is the least effective in meeting the standards in a problem-based manner. Revise and/or replace the lesson by utilizing what was discussed in class about high-quality mathematics instruction (addressing all learners; utilizing innovative techniques that encourage problem solving, communication, connections, multiple representations, and reasoning; integrating technology, literacy, and other content areas; etc.). TCs are free to use resources discussed in class (NCTM journal articles, illuminations, the texts, etc.) and/or seek help from expert teachers, making sure to cite accordingly.

TCs must include the original lesson from the unit that is being revised or replaced, with markings, comments, and critiques. TCs must include the final lesson plan which should take into account these markings, comments, and critiques. In some organized, clear fashion, the comments and critiques of the chosen lesson influencing how the lesson was revised.
or why it was replaced should be indicated on the final draft (tracked changes, highlighting, comments, change in font color, strike-through font, etc.).

(3) Revise the unit
Explain how the unit was revised (based on the revised lesson) and how the unit should be revised in order for it to address deficits related to standard alignment, nature of the classroom tasks and culture of classroom, and equity and accessibility. In order to prove that there were not deficits for certain standards, nature of classroom components, and/or equity/accessibility components, TCs must provide an example and location for each of the satisfactory/met criteria/standards. TCs should address each component and standard (all CC practice and all assigned CC content) under its own distinct heading.

The final project is due on exam day.

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 (January 21 to April 21, 2016; online schedule available January 15 at http://csl.cofc.edu/labs/writing-lab/). Additionally, 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 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>Weekly Assignments (9)</th>
<th>36 points, 4 points each (18%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explorations (9)</td>
<td>36 points, 4 points each (18%)</td>
</tr>
<tr>
<td>Math Trail Assignment</td>
<td>18 points (9%)</td>
</tr>
<tr>
<td>TCM Lesson Plan 1</td>
<td>25 points (12.5%)</td>
</tr>
<tr>
<td>TCM Lesson 2</td>
<td>25 points (12.5%)</td>
</tr>
<tr>
<td>Tests (2)</td>
<td>30 points, 15 points each (15%)</td>
</tr>
<tr>
<td>Curriculum Analysis Final Project</td>
<td>30 points (15%)</td>
</tr>
<tr>
<td>Each Class Missed</td>
<td>- 4 points (-2%)</td>
</tr>
</tbody>
</table>

Attendance Policy:
Students are only able to miss 2 classes. After 2 missed classes, students will be automatically removed from the course and receive a grade of WA (Withdrawn Excessive Absences, equivalent to an F).

<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 within the Exploration assignments.**

**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 be 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 by both 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 XXF 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.


**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 the 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, Health, and Human Performance (SOEHP) 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) SOEHP, (2) CAEP (1.1 relates to the 10 InTASC standards), (3) National Association for the Education of Young Children (NAEYC), (4) National Middle School Association (NMSA), and (5) State Standards for Teacher Education (SC). They, therefore, indicate the expectations for teacher candidates within the SOEHP, 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 middle grades.
   SOE I; NAEYC, 1c; InTASC 1 (CAEP 1.1)

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; NAEYC 4b, 5a, 1c; InTASC 2, 4, & 8 (CAEP 1.1)

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; SC 4 (contextual teaching and diverse learning styles); related to NAEYC 4a; InTASC 2 (CAEP 1.1)

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; NAEYC 5a; NMSA 4.K2, SC 4 (contextual teaching); InTASC 4 (CAEP 1.1)

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; NAEYC 1a, 5c; NMSA 3.K5, 3.D4, 4.P3; SC 4 (diverse learning styles; cooperative teaching); InTASC 1, 5, & 7 (CAEP 1.1)

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; NAEYC 1c, 4b; NMSA 1.P5, 1.P10, 4.K3, 5.K2; SC 4 (diverse learning styles); InTASC 1, 2, & 8 (CAEP 1.1)

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; NMSA 1.P6, 5.K8, 5.D5, 5.P4, 6(all) NAEYC 6d and/or 4d (related to self assessment to inform future instruction by being reflective and critical); InTASC 6 & 9 (CAEP 1.1)

8. TCs will communicate about and through mathematics verbally and in writing using both everyday language and mathematical representations.
SOE II; NAEYC 4c, 5a; NMSA 4.K4, 4.D4, 4.P5; InTASC 3 & 4 (CAEP 1.1)

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, Common Core State Standards, and the SC Standards.
SOE II; NAEYC 5b; NMSA 4, 6.K5; SC 7; InTASC 4 (CAEP 1.1)

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 reflected in the Common Core State Standards for Mathematical Practices and the SC Standards.
SOE II; NAEYC 5b, 4c, 5c; NMSA 4, 5.K3, 5.P2, 6.K5; SC 4 (contextual teaching); SC 7; InTASC 3, 4, 5, & 8 (CAEP 1.1)

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; NAEYC 5a, 5c; InTASC 4 (CAEP 1.1)

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>Topics</th>
<th>Readings and Assignments to be Completed for the Given Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 8</td>
<td>Introductory activity; Course overview and goals; Mathematics teaching and learning; Standards and standard-based teaching.</td>
<td>VDW Chapters 1 and 2.</td>
</tr>
<tr>
<td>Jan 15</td>
<td>Teaching through problem solving; Problem-based classroom; Three part lesson; Exploration 1.</td>
<td>Weekly Assignment 1; VDW Chapter 3 and 4.</td>
</tr>
<tr>
<td>Jan 22</td>
<td>Critique lesson plans; Exploration 2: Choral Counting; Assessment for learning; Explanation of TCM Lesson Plan 1.</td>
<td>Weekly Assignment 2; VDW Chapter 5.</td>
</tr>
<tr>
<td>Jan 29</td>
<td>Equity and accessibility; Deficit approach versus resource approach to equity; Gender and mathematics; Exploration 3.</td>
<td>Weekly Assignment 3; VDW Chapter 6.</td>
</tr>
<tr>
<td>Feb 5</td>
<td>Developing meanings for the operations; Addition and subtraction problem structures; Multiplication and division problem structures; Explanation of the Math Trail Assignment; Exploration 4.</td>
<td>TCM Lesson Plan 1 due to peers; Weekly Assignment 4; VDW Chapter 9.</td>
</tr>
<tr>
<td>Feb 12</td>
<td>Math Trail (meeting location will be announced in class).</td>
<td>Reading on Math Trails</td>
</tr>
<tr>
<td>Feb 19</td>
<td>Developing strategies for addition and subtraction computation; Exploration 5; Midterm explanation and review; Explanation of TCM Lesson Plan 2.</td>
<td>Weekly Assignment 5; TCM Lesson Plan 1 due; VDW Chapter 12.</td>
</tr>
<tr>
<td>Feb 26</td>
<td>Test 1 (1.5 hours); Social media and math; Sign up and explanation of Curriculum Analysis Final Project.</td>
<td>Study!</td>
</tr>
<tr>
<td>Mar 4</td>
<td>Developing strategies for multiplication and division computation; Exploration 6.</td>
<td>Math Trail Assignment due; Weekly Assignment 6; VDW Chapter 13.</td>
</tr>
<tr>
<td>Mar 18</td>
<td>Developing fraction concepts; Developing fraction operations; Exploration 7.</td>
<td>Weekly Assignment 7; VDW Chapters 15 and 16.</td>
</tr>
<tr>
<td>Date</td>
<td>Activities</td>
<td>Assignments/Readings</td>
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<tr>
<td>Mar 25</td>
<td>Teaching percents; Algebraic thinking; Number and operations lesson rotations; Algebra lesson rotations; Exploration 8.</td>
<td>Weekly Assignment 8; Number and operations shared TCM lesson 2; Algebra shared TCM lesson 2; VDW Chapter 14.</td>
</tr>
<tr>
<td>Apr 1</td>
<td>Geometry and measurement; Exploration 9.</td>
<td>Weekly assignment 9; Geometry and measurement shared TCM lesson 2; VDW Chapters 19 and 20.</td>
</tr>
<tr>
<td>Apr 8</td>
<td>Teaching data analysis and probability; Math for social justice.</td>
<td>Data analysis and probability shared TCM lesson 2; VDW Chapters 21 and 22.</td>
</tr>
<tr>
<td>Apr 15</td>
<td>Test 2 (1.5 hours); Mathematics and other subjects; Last class celebration.</td>
<td>Study!</td>
</tr>
<tr>
<td>Apr 25</td>
<td>Curriculum Analysis Project</td>
<td>Projects due to my OAKS dropbox by 3:00 pm (end of designated exam time)</td>
</tr>
</tbody>
</table>