**Credit Hours: 3 semester hours**

CTEE 4040 Curriculum: Math

Course Syllabus

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**Prerequisite: Admission to Teacher Education**

**Class Location: Haley Center 2414 and Wrights Mill Road Elementary**

**Lab Location: Wrights Mill Road Elementary**

**Required Text: CTEE 4040 Coursepack (University Bookstore)**

**Required Materials: Notebook for journaling**

**Additional Resources:**

**NCTM 120 Day Free Membership**

<http://www.nctm.org/resources/sampler/default.asp>

**The NCTM *Standards* Documents**

NCTM (2000). Principles and standards for school mathematics. Reston, VA: NCTM.

NCTM (1989). Curriculum & evaluation standards for school mathematics. Reston,VA: NCTM.

NCTM (1991). Professional standards for teaching mathematics. Reston, VA: NCTM.

NCTM (1995). Assessment standards for school mathematics. Reston, VA: NCTM.

NCTM (2008). Curriculum Focal Points. Reston, VA: NCTM.

**Alabama Course Expectations**

http://www.alsde.edu/html/sections/documents.asp?section=54&sort=3&footer=sections



**COURSE DESCRIPTION/OBJECTIVES**

This course is designed to give teacher candidates a deeper understanding of what it takes to teach mathematics successfully to children. It is extremely challenging to teach mathematics well and we will be considering several aspects of what it takes to do this. Beyond understanding the content, teachers must also have the wherewithal to anticipate how children might think about the mathematics and the various strategies they might use to solve problems. As a teacher, how will you determine whether students have a solid understanding of the mathematics you are teaching?

All of these decisions impact what teachers do in the classroom to create an environment where students are challenged to think, to learn mathematics with understanding (rather than rote memorization), and to make connections among mathematical ideas. You will be challenged to think hard about how the culture you set in the classroom and how this shapes what students will do to learn mathematics and what they will learn to value. We will focus on what kinds of lessons produce that type of thinking and work on analyzing your own lessons to help promote student understanding.

When teaching, a teacher should prepare mathematically for what might happen as a lesson unfolds, prepare good questions to elicit thinking, and think carefully about the amount and kind of information you provide to students to support their work. In order to create an environment where students are challenged to think, it is important as practitioners to reflect on our instructional practices. As we consider teaching mathematical content we will focus on what it means to become a reflective practitioner. You will also participate in reflective activities that will help you think about your teaching in an insightful, productive, and engaging manner.

By the end of the semester, you should develop an understanding of the process required to continue to learn how to teach so that you can grow throughout your career. In addition you should develop the necessary skill set to teach in a student-centered environment that promotes students’ understanding of mathematics.

**Course Content and Schedule:**

See attached tentative schedule

**COURSE REQUIREMENTS AND GRADING POLICY**

Grades will be assigned according to the following scale:

A Superior 90% – 100%

B Good 80% – 89%

C Acceptable 70% – 79%

D Passing 60% – 69%

F Failure Below 60%

**Class Participation:**

Consistent and productive participation in class will be considered in determining the final grade. (See Professionalism) Assigned readings and the ability to synthesize and discuss the content are critical to this course. You are expected to initiate and contribute to the readings during class session.

**Attendance Policy:**

Attendance is required at each class meeting. Arriving late, leaving early, or missing a class for an unexcused absence will result in the deduction of points. If you will be absent from class, please notify me in advance. If an exam is missed, a makeup exam will be given only for University approved excuses as outlined in the *Tiger Cub*. Arrangements to take the makeup exam must be made in advance. Students who miss an exam because of illness need a doctor’s statement for verification of sickness and should clear the absence with the instructor the day they return to class. Other unavoidable absences from campus must be documented and cleared with the instructor in advance. (See *Tiger Cub*, Section I of Rules, Regulations, and Policies). Also see Lab Manual.

**Course Notebook and Written Reflections:**

Students typically have difficulty taking notes in this class, and so I have specific suggestions for how to organize your ideas from this course so that they will be useful to you when writing or developing your projects as well as for when you begin to teach. Your notebook should include the following different types of entries:

**In-Class Notes**:

These should capture what we do in class by listing activities, drawing any representations we discuss, and jotting down ideas that are discussed. After every class you should also set aside about 5 minutes to re-read your class notes, and fill in the gaps in order to ensure that they make sense at a later date.

**Post-Class Notes**:

These should include the following: 1) **a summary of the** **important issues/points from class**; and 2) **your reactions to these points** where you discuss whichideas/issues surprised you, which ideas you are continuing to think about and in what way, and 3) **what connections you are noticing across classes**, and which ideas you would still like to learn more about.

**Reading Notes:**

For every individual reading that is assigned, these reflections should: 1) **summarize the reading** by explaining the authors’ main points/arguments, and 2) **provide a commentary** on which ideas you agree with and which you do not. For some readings, you will be told to respond to specific questions rather than a general reflection.

**Unannounced Quizzes:**

There will be no unannounced quizzes.

**Accommodations:**

Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternative time can be arranged. To set up this meeting, please contact me via email. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. Any student needing special accommodations should contact the Office of the Program for Students with Disabilities, located in 1244 Haley Center.

**Academic Integrity:**

Instances of academic dishonesty will be reported to the Academic Honesty Committee. (See *Tiger Cub*, Section 4 of Rules, Regulations, and Policies and Title XII of the SGA Code of Laws). You should consult me if you are uncertain pertaining to an issue of academic honesty prior to submitting an assignment.

**Expectations: Professionalism**

The following standards will be honored to create a professional learning environment.

1. Attendance and punctuality demonstrate that you value this course. Classroom teachers model these behaviors for their students.

1. It is a good idea to develop a buddy system with others in class in case of unexpected absences. You will need to find out from a classmate what you’ve missed.
2. Teaching is a field that requires professional reading and reflection. Your thoughtful reading before class, your engaged participation in class discussions and activities, and the positive stance you take in interacting with your instructor and with others in the group are expected.
3. Attend carefully to class presentations and discussions. Professionalism is more than just showing up for class. In this course you will be expected to treat the others in our group with respect and to support their successes. Respect does not mean always agreeing with others. It means allowing others their dignity. It means actively and courteously listening to what others say and responding with your own perspective. It means taking an active role and enhancing others’ thinking by sharing your own rough draft thinking as it develops, and by clarifying the reasons that you might “agree to disagree” with others. Developing strong relationships with colleagues is one of the most important things we do as a teachers.
4. As a courtesy to the class, please do not leave on beepers, phones or pagers in class.
5. As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College’s conceptual framework. These professional commitments or dispositions are as follows: (a) engage in responsible and ethical professional practices (b) contribute to collaborative learning communities (c) demonstrate a commitment to diversity (d) model and nurture intellectual vitality.

**Grading:**

Writing Assignment 1 25 points

Math Curse 40 points

Journal Submission 40 points

Finding Worthwhile Tasks 40 points

Lesson Plan 40 points

PSSM/Focal Points/Common Core 25 points

Writing Assignment 2 25 points

Participation (Attendance, class participation, daily logs) 40 points

Total Possible Points 275 points

**Assignments:**

All written assignments must be typed and should adhere to Standard English usage and conventions and follow the format detailed in the latest edition of the *Publication Manual of the American Psychologist Association* (APA 6th edition). Assignments must be presented on time. Assignments are considered late if they are turned in after the class beginning of the class they are due and will be reduced by 10% for each day they are late.

**CTEE 4040 Tentative Schedule**



|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Topic** | **Readings** | **Assignment** |
| June 28  Monday | Teaching Mathematics for Understanding  Overview of NCTM Principles and Standards   * Horse Problem * Pretzel Problem * Even/Odd Numbers * Role of Teacher & Student * Introduction to NSF-Funded Curricula * Introduction to journaling | Course Syllabus  Executive Summary of PSSM  **Coursepack p 4-11**  *Teaching Mathematics in the Context of the Reform Movement*  120 Free Access to NCTM  Read Syllabus  **Coursepack p 13-29**  *Choices & Challenges*  **NCTM Principles and Standards: *Process Standards***  **TN:** *Reasoning and Proof in Math, Pt 2* |  |
| June 29  Tuesday | **Learning Principle**  “Students must learn mathematics with understanding, actively building new knowledge from experience and previous knowledge”  **Counting**   * Birthday Problem * Issues in Counting * Inventory Bags   **From Counting to Addition**  **Introduction to Investigations**  Grade: 1st  Unit 8: Twos, Fives, and Tens  Unit Overview:  This unit continues to develop ideas about counting and quantity, the composition of numbers and the operations of addition and subtraction. Students also revisit the number sequence, counting to 100 and beyond.  They also think about ways to organize objects so that they are easier to count and combine. Students begin to make sense of what it means to count by groups. This unit also focuses on achieving fluency with the 2-addend combinations of 10 and introduces students to equivalence (e.g. 5+8=10+3).  Unit Benchmarks:  • Identify, read, write, and sequence numbers to 105.  • Begin to count by groups in meaningful ways.  • Gain fluency with the 2-addend combinations of 10.  Previous Skills (builds upon units one, three and six)  Students……  • Counted, composed and decomposed numbers  • Added and subtracted small amounts  • At this point in the year, students should be able to:  o count well over 50 both out loud and in writing  o Solve story problems and record their work  o Know some of the 2-addend combinations of 10 | **Coursepack p. 30-46**  *Counting Cases*  **Coursepack p. 38-50**  *Modeling the Operations Case*  **Investigations Readings:**  **First Grade (pdf)**  **Counting (pdf)** | **WA #1 Due** |
| June 30  Wednesday | **Investigations**  **Investigation 1: Getting to 100**   * Ten Turns * Revisiting the 100 Chart * Counting to 100 and Beyond * Assessment   **In Class Micro Teach** | **Coursepack p. 64-67**  *Models of Problem Solving*  **Coursepack p. 73-83**  *Thinking in Units*  **Coursepack p. 84-96** | **Lesson Plans Due** |
| July 1  Thursday | **Investigations**  **Investigation 2: Twos, Fives, and Tens**   * How Many Hands? * More Problems About Twos * Twos and Fours * How Many Fingers? * How Many Squares? * How Many Feet? * How We Counted? * Assessment   **In Class Micro Teach** | ***Mastering the Basic Facts* (TCM Article)**  **Coursepack p. 97-105**  *Harmful Effects of Algorithms* |  |
| July 2  Friday | **Investigations**  **Investigation 3: Tens**   * Games About Combinations of 10 * Roll Tens * Ten Plus * Tens and Ones * Equivalent Expressions * Assessment   **In Class Micro Teach** |  |  |
| July 6  Tuesday | **Lab/Class** | **Mathematics in the Streets and Schools** | **At WMR Elementary**  **Math Curse Due** |
| July 7  Wednesday | **Learning Principle**  **Meaning of Multiplication and Division**  **Fluency & Addition Facts**  **Developing Number Sense, and Strategies for Single-Digit Computation**  **Whole Number Computation**  **Reasoning Procedures for Subtraction** | **Curriculum Focal Points**  **PSSM**  **Common Core Standards** | **At WMR Elementary** |
| July 8  Thursday | **Lab/Class** |  | **At WMR Elementary** |
| July 9  Friday | **Teaching Principle**  “Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well”   * Lesson Planning * Worthwhile Tasks * Reflecting on Practice | **Coursepack p. 108-115**  *Susannah’s Cases*  **Coursepack p. 128-136**  *Van de Walle (Teaching through problem solving, a Three-Part Lesson Format* | **At WMR Elementary** |
| July 12  Monday | **Teaching Principle**   * Classroom culture * Questioning * Cooperative Learning | **Coursepack p. 151-172**  *Teaching Problems & the Problems of Teaching* | **Group Presentations of**  **Curriculum Focal Points**  **PSSM**  **Common Core Standards** |
| July 14  Wednesday | **Curriculum Principle**  “A curriculum is more than a collection of activities; it must be coherent, focused on important mathematics, and well articulated across the grades” | **Finding Worthwhile Tasks** |  |
| July 16  Friday | **Curriculum Principle**   * Traditional vs reform curricula * Rational Number Project |  |  |
| July 19  Monday | **Curriculum Principle**   * Rational Number Project |  |  |
| July 22  Wednesday |  |  |  |
| July 23  Friday | **Assessment Principle**  “Assessment should support the learning of important mathematics and furnish useful information to both teachers and students” | **Coursepack p. 116-124**  *Building Assessment into Instruction* | **Journals Due** |
| July 26  Monday | **Equity Principle**  “Excellence in mathematics education requires equity—high expectations and strong support for all students”   * Status Treatment |  |  |
| July 28  Wednesday | **Technology Principle**  “Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances student learning”   * SmartBoard Training |  | **Final Writing: Reflections of Teaching Mathematics** |
| July 30  Friday | **Worthwhile Tasks Planning** |  |  |
| August 2nd | Presentation of Worthwhile Tasks |  | **Presentation of Finding Worthwhile Tasks** |