**AUBURN UNIVERSITY**

**SYLLABUS**

1. **Course Number: CTEE 4040**

**Course Title: Curriculum Mathematics**

**Credit Hours:** 3 semester hours

**Pre/ Co-requisites:**  This section is restricted to Elementary Education majors enrolled in CTEE 4030: Natural Science

1. **Term** Spring 2015

**Day/Time** Thursdays 11-12:50 / Lab MWF 7:30-3pm

**Room:** HC 2414

**Instructor** Dr. Megan Burton

**Office Address** 5020 Haley Center

**Contact Information (phone, e-mail)** 844-8141, megan.burton@auburn.edu

**Office Hours** Thursdays 8-10:30

1. **Texts or Major Resources:**

**Required Texts:**  Bamberger, H. J., Oberdorf, C. & Schultz-Ferrell, K. (2010). *Math misconceptions: From misunderstanding to deep understanding*.  Portsmith, NH: Heinemann (an electronic version is fine as long as when it is used in class, you do not open other programs that are not being discussed)

Principles to Action pdf downloaded from NCTM.org

**Required Materials**

Composition notebook, 1 dvd or flash drives for teaching artifact (Wait to purchase until this is discussed in class), school pouch with supplies (tape, mini-scissors, markers, pencil, black ink pen, white out, calculator), COE name-button *[LRC for buttons.]* Materials needed to construct instructional charts, games, and other teaching resources. A pack of 100 lined index cards (any size)

**Alabama Course of Study 2013**<http://www.alsde.edu/sec/sct/COS/2013%20Revised%20Alabama%20Mathematics%20Course%20of%20Study.pdf>

1. **Course Description:** Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of mathematics for elementary learners. During this course the students will participate in part of the AMSTI precertification training for schools in the state of Alabama.
2. **Student Learning Outcomes:**
3. **Goal:** To critically analyze curriculum and the process of teaching and learning mathematics in the elementary grades.

**B. Objectives:** Student learning outcomes (SLO) for elementary education majors are based on the Alabama Quality Teaching Standards [state standards] (AQTS) and the Association of Childhood Education International (ACEI) [national standards]. After the completion of the course and the clinical based lab, the pre-service teacher should:

1. know, understand, and use the major concepts and procedures that define numbers and operations, algebra, geometry, measurement, data analysis, and probability. In doing so they will engage in problem solving, reasoning, proof, communication, connections, and representation. This includes understanding current reforms efforts and technological resources that enhance the learning experience for K-6 students. (AQTS 1.A 1, B. 1; 4.A. 3) (ACEI 2.3)

2. Have knowledge of techniques for using manipulative materials and play as instruments for enhancing development and learning. Recognize and develop lessons that use techniques such as mathematical recreation, manipulative materials, and technology to enhance development and learning. (AQTS 1.A v, 1.B. iii) (ACEI 2.3, 3.1)

3. demonstrate in-depth knowledge and understanding of how the major concepts and themes of mathematics are integrated across academic fields (AQTS 1.A v, 1.B. iii) (ACEI 2.3, 3.1)classroom that reflect meaningful mathematics and build on prior knowledge.

4. plan and implement engaging learning experiences based on the Alabama Course of Study for Mathematics and the National Council of Teachers of Mathematics standards in which K - 6 students are challenged to problem solve, analyze, and evaluate real world situations and are able to demonstrate their competence and build on prior knowledge. (AQTS 1. A. ii, iii,iv,v; B. ii,iii; 2.A. v, vi, vii) (ACEI 2.3, 3.3., 3.4)

5. use the major concepts and modes of inquiry from mathematics to promote elementary students' abilities problem solve, reason, communicate mathematically, make connections and represent their thinking in a clinically based lab placement (AQTS 4.A. iii, iv, v) (ACEI 2.3)

6. Recognize the importance of communication skills in themselves and in the children they teach, including strategies for reasoning, problem solving, inquiry and debate in new settings in a clinically based lab placement (AQTS 2.D. i, ii, vi, vii, ix, x; 3.A v, vi, vii) (ACEI 2.3)

7. plan and implement a variety of individual and group activities that emphasize student participation. Plan and analyze appropriate assessments in order to monitor K-6 student learning and progress (AQTS 2.E.i, ii, v, vii, viii, ix, x, xi)(ACEI 4.0)

8. demonstrate an understanding of the teaching professional codes of ethical conduct (AQTS 5.E. i, ii, iii, iv F.i, ii, iii, iv) (ACEI 5.1)

9. reflect on their own teaching practices and consult with other professionals in order to grow professionally (AQTS 5.B iv, v, vi, vii) (ACEI 5.1)

10. Use clinical based lab placement's observation and practice of teaching and learning as a basis for experimenting with, reflecting on, and revising professional practice (AQTS 2.D. v, vi, vii, viii, ix, x) (ACEI 5.1)

1. **Course Content Outline: *The instructor reserves the right to make changes in this schedule or modify experiences***
* **All homework listed is due at the beginning of the class period**
* **Jan. 14, 16, and 21 you will be engaged in AMSTI science training rom 7:30-3:30**
* Tuesday, Jan. 20 11- 12:50 Math- Syllabus, introductions, what do we know, standards
	+ HW Due: Bring a printed syllabus and your textbook to class
* Friday, January 23 8-12:50 What Is Effective Mathematics Teaching? Standards/ Assessment
	+ - Effective Teaching and Learning/ sign up for math lesson
	+ HW Due: Read pg 1-29 in Principles to Action (PTA) and view the video *Mingle and Count.* Write three things that resonated with you from the reading and one from the video. This could be a question, observation, concern, disagreement, or "ahaa" moment.
* Monday, January 26 8-12 Standards Based Instruction/ Effective Teaching Lesson Planning
	+ HW Due: Read pg 29-58 of PTA- in your journal note what you think are the most essential elements of teaching mathematics and why. Then share what your strengths, weaknesses, and concerns about the readings and teaching this way are.
* Tuesday, January 27 8-12 Lesson Planning/ Numbersense
	+ HW Due- Read MM chapter 1 1 (stop at fraction section) and write what resonates with you from each section in your journal. (Also refer back to PTA pg 42-48)
* Wednesday, Jan. 28 8-12 Discuss Lab Manual/ Group Lessons
	+ HW Due: **Group Lesson**
		- **FRIDAY, JANUARY 30th FIRST DAY IN PLACEMENT**
		- Thursday, February, 5 11-12:50 Computation/ Multiplication
			* HW due read an article on 9 ways to catch children up
* Thursday, Feb. 12 11-12:50 Division and Math Game Info
	+ HW none
* Thursday, Feb. 19 Multiplication and Division
	+ Read 1 of the 3 articles on Canvas and share 3 things that resonate with you
* Thursday, Feb. 26 11-12:50 Fractions-
	+ HW Due: Read Chapter 1 section on Fractions

***\*\*\* First Math Lesson Observation Form Must be submitted by March 3\*\*\*\****

***\*\*\*Submit approved math or science lesson plans & Teaching Artifact assignment (Part I) to GTA for next week (Each must be submitted one week before teaching \*\*\*\*\****

* Thursday, March 5 11-12:50 Fractions and Math Game Due
	+ HW: **Math Games Assignment Due:** Bring your math games and post math handout for Dr. Burton under assignments and discussion for your peers
* Thursday, March 12 Fractions
	+ HW Due: Read one of the 3 articles on Canvas and note 3 things that resonated with you
* Thursday, March 19 Fractions / Differentiation
	+ HW Due: Read 1 of 3 articles on Canvas and note what resonated with you
* Thursday, April 2 Fractions
	+ HW Due: Read PTA 78-100 and note something that resonates with you
		- **WEDNESDAY, APRIL 8th LAST DAY IN PLACEMENT**

***\*\*\*Submit completed Teaching Artifact (Part II) to GTA (Must be submitted one week after teaching By April 9 at the latest\*\*\*\*\****

* Thursday, April 9 Differentiation/ Geometry
	+ HW Due: Read chapter 3 in Math Misconceptions and make an entry in your notebook and **submit kidwatching assignment**
* Thursday, April 16 11-12:50 Pedagogy Test
	+ Take **Pedagogy test** in class
* Monday, April 20 8-12 TBA & Webquest assignment
* Thursday, April 23 11-12:50 Geometry/ Measurement
	+ HW Due: Read chapter 4 in Math Misconceptions and make an entry in your notebook
* Wednesday, April 22 8-12 Assessment/ Geometry
	+ TBA
* Friday, April 24 8-12 Exploring Strategies
	+ TBA
* Monday, April 27 8-12 Algebra/ Cognitively Demanding Tasks
	+ HW Due: Read Chapter 2 and make an entry in your notebook
	+ **Notebooks are due April 27**
* Thursday, April 30 Data Analysis/ Pulling It Together. What type of teacher will you be?

HW Due: Read PTA 114-118 and be prepared to discuss it.

1. **Assignments/Projects:**

1. Class Activities and Journal: This course is designed to allow opportunities to ask questions, contribute to class discussion, and share relevant experiences. Therefore, *participation and professionalism are extremely important.*  Requirements for acceptable participation include prompt, timely, and consistent attendance; attentiveness; verbal contributions to small group and whole class discussions; reflection of a positive attitude about learning and class participation; and respecting and supporting the needs of others, including the professor. Participation includes completing all assignments which facilitate the class and or cohort experience including displaying materials, sharing teaching ideas and examples of classroom incidents, writing productively and correctly in all written assignments, and bringing in other materials/information as requested.  Actively participate in class in ways that reflect your preparation including thoughtful completion of required readings. At times this may also involve assignments that you need to complete during your fieldwork and bring back to class. Information about each assignment will be shared in class. You will also complete math journal entries that are related to your experiences in the field, readings, activities, and class discussions. They are designed to help you make connections between the readings, mathematical content and your fieldwork.

2. Investigations Individual or Co-teaching: Includes joint preparation and implementation of an **Investigation lesson** from an AMSTI math bundle for grades K-5. The co-teachers (or individual teacher) will share the lead in teaching this lesson to their peers during class. Your group will be required to submit a written lesson plan in class and on Canvas for your activity. A rubric for evaluation will be provided.

3. Math Pedagogical Content Knowledge Test: By the end of this course, you should have a firm grasp of the pedagogical content knowledge that you will teach. This course is designed to build upon this and help you see how children understand and develop awareness of mathematical skills. Research shows that in order to effectively teach elementary mathematics, you must have conceptual understanding (Ball, 2006). This test will demonstrate your understanding of common elementary strategies and representations related to multiplication, division, addition, subtraction, fractions, and geometry.

4. Student Mathematics Games: Games develop familiarity with the number system, provide opportunity for practicing computation, encourage strategic thinking, develop fluency with numbers, allow student’s to communicate with each other, and provide a school to home link. While students play games, the teacher is free to observe student’s work or to work with few students individually. You will find 2 math games according to constructivist guidelines developed by Kamii (2000) that can be played with 2-4 players independently. These games may deal with numbers, place value, addition, subtraction, multiplication, division, or fractions. You will play at least one game with a student and reflect on your experience in your handout. You will then prepare one copy of both games with all materials and clear directions included. You will bring both games to class.  **You will also post a handout on Canvas under assignment that describes the purpose and procedure of both games**.

Summary:

1) Bring both games along with directions and materials to be played in class

2) Post handout of purpose and procedure to Canvas under Assignment. This handout will also include a description of the experience playing the game with a student.

5. Kidwatching notebook: Select 2 different children to observe and specifically interact with during math time. Take notes of the ways they think about the math, their reactions to assignments/ activities, the ways they communicate about mathematics, how they use manipulatives, and how they think about different mathematical problems. You will type a 1-2 page double spaced paper reflecting on this experience, your students, and what you learned about teaching and learning from this.

6. Lesson Plan- You will submit a Lesson Plan for your Teaching Artifact that lists content and practice standards, objectives, materials, clear procedures following the pedagogy discussed in class (introduce, time for students to explore and explain thinking, and a closure), an assessment that could be graded, modifications for ELL students, modifications for a specific special need, modifications for early finishers, and one children’s book that could be used as supplemental instruction with this lesson concept.

7. Teaching Artifact/ Professional Work Sample: after teaching the lesson. Includes pre-thinking about a lesson, a lesson plan, videotaped teaching, written and oral observer feedback, evidence of student learning (i.e., assessment, analysis, samples), and written reflection on practice towards continuous improvement. The reflection should include information learned about planning, teaching, and learning mathematics. Details of this assignment are given in the *Field Placement Handbook*. ***The instructor reserves the right to request additional teachings based on unsatisfactory performance.***

 8. Lab Professionalism and Observation Forms: Document your attendance, professional dispositions, and planning and teaching abilities in your field placement. You must meet weekly professional expectations in the field in order to pass this course – no continuous absences (more than 2) and no continuous NO marks on professionalism and teaching indicators. You must also demonstrate your abilities in teaching at the emerging level on all standards and indicators listed on the *EDUCATE Alabama* observation form in order to pass this course. ***See the Laboratory Placement Handbook for all lab forms and details.*** Field experience hours in this course are linked to certification standards. You must complete the minimum number of field experience hours as stated in laboratory handbook to receive credit for this course.

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| **Date Due** | **Requirement** | **Value** |
| All class sessions- Journals are due Journal due April 27 | Class Activities and Journal entries | 10 points |
| April 9 | Kidwatching Reflection | 15 points |
| April 9 | Math Pedagogy Test | 20 points |
| Jan. 28 | Investigative Teaching | 10 points |
| March 5 | Math Games Assignment | 10 points |
| (with Teaching Artifact) | Lesson Plan | 15 Points |
|  (See Lab Manual) | Teaching Artifact  | 20 points |
| At end of lab experience*Weekly in field**Final cumulative report**Total lab hours/Standards* | * \*\*Weekly Lab Hours & Professionalism Form

 **(All completed copies required)*** *\*\*\**Lab Placement Summative Assessment Rating Form **(All standards at ‘approaching competence’)**
* \*\*\*\*Final Lab Placement Evaluation Form

**(Satisfactory Performance Required on all)** |   |
|  | **Total** | **100 points** |

**^All assignments must be completed in order to get credit for this course, even if turned in late for less credit.**

**\*Students MUST have satisfactory marks on all areas of the COURSE AND FIELD PLACEMENT by the end of this course in order to receive credit for this course.** Students will be counseled throughout the course by written notification (email), and for more serious matters in person (signed letter or contract), if they are not meeting SATISFACTORY expectations on indicators before the end-of-course conference.

\*\*Meeting weekly attendance, planning, teaching, and professional dispositions in the classroom is required for all field students in this course to show readiness for internship. Students who are not continuously meeting all of these expectations may fail their lab placement and this course. **See Lab Placement Handbook.**

\*\*\*Students must meet professional performance expectations on all Standards listed on the *Lab Placement Summative Assessment Rating Form* at the ‘approaching competence’ or higher rating to pass this course. **See Lab Placement Handbook.**

\*\*\*\*Students must meet the total required lab hours and Standards on the *Lab Placement Summative Assessment Rating Form* in order to pass this course. **See Lab Placement Handbook.**

* Use of *Canvas* system, internet, and email for communication and instruction. All assignments must be submitted in either rich text or Microsoft word format unless directions were given to use PowerPoint or Excel. It is the students’ responsibility to check the assignment, once submitted, to ensure it went through properly.
* Students will be expected to demonstrate basic skills in reading, writing, speaking, and mathematics. Assignments that have multiple mathematical, grammatical, or spelling errors will have to be revised correctly at a letter grade point loss.
* Graded course assignments are due on the assigned date and must be completed in a thorough manner. Major assignments that are incomplete or not done on time will lose points equal to one letter grade for each day late up to three days. All assignments must be completed, whether or not credit is given, in order to pass this course. **Late weekly assignments will not receive credit.**
1. **Rubric and Grading Scale:**

All rubrics are posted on Canvas. The Auburn Standard Grading Scale will be used to determine grades for this course.

A   =  90-100          B   =  80-89           C   =  70-79

D   =  60-69            F    =  below 60 points

1. **Class Policy Statements:**
2. Participation: Students are expected to participate in all class discussions and participate in all exercises. Assignments are due on announced dates. Unexcused late assignments are unacceptable. It is the student’s responsibility to contact the instructor if assignment deadlines are not met. Students are responsible for initiating arrangements for missed work. Students must satisfy all course objectives to pass the course.
	1. **At two absences from class students will be required to meet in conference to discuss continuing in this course.** [See Lab Manual for similar lab attendance policy]. Students will be counseled and placed on an attendance contract in order to continue in the course. Expected professional dispositions and performance competencies in this field-based course require students to meet attendance requirements.
	2. Five points will be deducted from the final grade for any unexcused absence from class or lab. **At 2 unexcused absences students will be referred to the Office of Student Affairs to be withdrawn from the course.** Three unexcused tardies will be counted as one unexcused absence. Leaving class early counts as an absence without prior (not same day) approval.
3. **Excused Absences**:  Students are granted excused absences from class for the following reasons:  Illness of the student or serious illness of a member of the student’s immediate family, the death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for University classes, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays.  Students who wish to have an excused absence from this class for any other reason must contact the instructor in advance of the absence to request permission.  The instructor will weigh the merits of the request and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence.  Appropriate documentation for all excused absences is required. Please see the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/) for more information on excused absences (<http://www.auburn.edu/student_info/student_policies/>).
4. **Make-Up Policy:**Arrangement to make up missed major examination (e.g. hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week from the end of the period of the excused absences.  Except in unusual circumstances, such as continued absence of the student or the advent of University holidays, a make-up exam will take place within two weeks from the time that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.  The format of the make-up exam will be (as specified by instructor).
5. **Disability Accommodations:** Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. To set up the meeting, please contact the instructor by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).
6. Honesty Code:  All portions of the Auburn University student academic honesty code (Title XII) found in the [*Student Policy eHandbook*](http://www.auburn.edu/student_info/student_policies/) will apply.  All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee. Some assignments will involve integrating readings & websites into your reflections & lessons. **Plagiarism is the act of representing words, data, works, ideas, computer program or output, or anything not generated by the student as his or her own.** Plagiarism may be inadvertent or purposeful; however, plagiarism is not a question of intent.  Please be sure to cite any outside sources used in work.  Also all work is to be done individually unless otherwise specified. All submitted assignments are subject to a plagiarism check.
7. Course contingency: If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, and addendum to your syllabus and/or course assignments will replace the original materials.

*In addition to the university recommended statements noted above, College of Education syllabi are to include the following statement:*

1. Professionalism: 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 listed below:
* Engage in responsible and ethical professional practices
* Contribute to collaborative learning communities
* Demonstrate a commitment to diversity
* Model and nurture intellectual vitality

     Each student is expected to exhibit courteous, mature, responsible, and professional behavior. This includes not texting messages during class, doing work for another class, and talking when someone else – a peer or instructor – is speaking. Students are expected to participate in all class discussions, exercises and readings. It is the student’s responsibility to contact the instructor if assignment deadlines are not met.  Students are responsible for initiating arrangements for missed work.

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. 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 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.

Cell phones and personal iPads need to be turned to off during class and lab experiences unless otherwise instructed by the professor. In addition, students should not work on university course assignments that are not field based during their lab experience. During lab experiences students are expected to be fully and actively involved in the classrooms in which they are placed.