**AUBURN UNIVERSITY**

**SYLLABUS**

**1.** **Course Number: CTEE 4000**

**Course Title:** Formative Assessment in Elementary Mathematics

**Credit Hours:** 3 semester hours

**Pre/ Co-requisites:**  Admission into Elementary Education program

**2.** **Term Fall 2021**

**Day/Time** C- MW 8-9:30 / A- 10-11:30

**Room:** HC 2454/ HC 1454

**Instructor** Burton & Dailey

**Office Address** 5020 Haley Center

**Contact Information (phone, e-mail)** 334-844-8141; megan.burton@auburn.edu

**Office Hours** Dr. Burton has a varying schedule, but will make time to meet with you to answer any questions, discuss concerns, or discuss anything related to the course. Please make an appointment, by email or [click this link](https://outlook.office365.com/owa/calendar/MeganBurton1%40tigermail.auburn.edu/bookings/) to schedule meetings in the office, via phone, or via ZOOM.

**3.** **Texts or Major Resources:**

**Required Texts:** **Smith, M.S., Bill, V., & Sherin, M.G. (2019).** The 5 Practices in Practice. Thousand Oaks, CA: Corwin ISBN 9781544321134

![BESTSELLER!  The Five Practices in  Practice [Elementary]  Successfully Orchestrating Mathematics  Discussions in Your Elementary Classroom  Smith - University of Pittsburgh, USA  Victoria Bill - University of Pittsburgh (United States)  Miriam Gamoran Sherin - Northwestem University, USA ]()

**Required Materials**

Composition notebook, school pouch with supplies (tape, markers, pencil, black ink pen, scissors, glue stick, colored pencils, white out, index cards), Materials needed to construct instructional charts, games, and other teaching resources.

**Alabama Course of Study: Mathematics** <http://alex.state.al.us/ccrs/node/74>

**4.** **Course Description: 1.** Examination into mathematics learning trajectories content and ways to assess student thinking in the area of mathematics**.**

This course includes examining student mathematical thinking, learning trajectories, questioning and assessment principles. The goal of the course is for students to be able to critically assess student thinking and learning mathematics in the elementary grades, utilizing knowledge of learning trajectories and assessment strategies. It also includes the relationship between pedagogy and mathematics understanding appropriate for the instruction of children in kindergarten through sixth grade. Through this course, students understand and use major concepts and procedures related to assessing individual learners’ elementary mathematics content of numbers and operations through problem solving, reasoning and proof, communications, connections and representations. This includes utilizing research-based teaching practices, the process standards, learning trajectories, representations, formal and informal assessment strategies, technology, and discourse. Teacher candidates develop and evaluate formal and informal assessment strategies for individual learners based on the state standards and standards produced by the National Council of Teachers of Mathematics. They plan and analyze appropriate assessment data to communicate about the current K-6 student mathematical thinking and plan for future intellectual, social, and emotional growth. They will analyze existing student data and interviews of elementary learners. Assignments include: 1) reading and practice reflections; 2) Student Thinking Portfolio; 3) Community Assessment project 3) Learning Assessment Test

**5.** **Student Learning Outcomes:**

* 1. **Goal:** To critically assess student thinking and learning mathematics in the elementary grades, utilizing knowledge of learning trajectories and assessment strategies.

**B. Objectives** After the completion of the course, the pre-service teacher should:

1. Design multiple entry point 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.

2. Identify student assumptions and preconceptions about mathematical content and adjust instruction according to prior understandings

3. Identify and utilize mathematical learning trajectories for geometry, number sense, and measurement

4. Analyze individual and classroom assessment data to interpret instructional steps.

5. Identify ways community and cultural resources can be utilized in the teaching and learning of mathematics.

**Assessments of Learning**

*Detailed directions and rubrics will be provided for each assignment. The table below shows the alignment between certain course assignments and the Alabama CIEP Accreditation Standards.*

|  |  |
| --- | --- |
| Standard | Assignment |
| *Standard 2.3.1, 2.3.2, 2.3.3, 4* | Learning Assessment Test  |
| *Standard 2.3.1, 2.3.2, 2.3.3, 4* | Student Thinking Portfolio   |
| *Standard 2.3.3* | Low Floor High Ceiling Task  |
| *Standard 4* | Analyzing Classroom Data  |
| *Standard 5.1, Standard 5.2* | Reading and Practice Reflections |
| *Standard 5.2* | Community Assessment project  |

**6.** **Course Content Outline: *Instructor reserves the right to change schedule/ modify experiences***

**\* All homework listed is due by midnight before the Wednesday class, unless otherwise noted.**

· 8/16 & 18 Week 1: Introductions, What is Mathematics? Examining our own experiences as learners of mathematics

* + Bring composition notebook, textbook, supply pouch, & a printed or electronic copy of syllabi to class
	+ HW Due August 18- Read Chapter 1: Introduction- In your journal:
		- Note the 8 teaching practices- we will be using these throughout the semester. What questions do you have?
		- How do they relate to the 5 teaching practices (see Fig. 1.2).
		- What are the 3 norms for video viewing? How could this help in interpreting your own teaching in your videos later this semester?

· 8/ 23 & 25 Week 2: Teaching Practices, Standards of Mathematical Practice & Learning Trajectories

* + HW due August 25: Read Chapter 2 (setting goals and selecting tasks) & write a reflection in your math journal.
		- Summarize what you learned about Practice 0. What are key questions to ask when considering tasks? What challenges do teachers face in setting goals and selecting tasks?
		- Watch the video clip on page 31 and answer the 3 questions.

 8/30 & 9/1 Week 3: Quantity, Number and counting- unpacking student thinking

o **HW due August 30 8am on Canvas Low Floor/ High Ceiling Task:** Create a task that is low floor and high ceiling. Share what standard it addresses, possible responses

* + - HW due Sept. 1 Read Canvas article and answer questions from Canvas in your Journal

· No class 9/6

· 9/ 8 Week 4: Interviewing, questioning and representations

o **HW due 9/ 8 at 8am on Canvas: Community Assessment Project**

* + - HW due 9/8: Read Chapter 3: Anticipating Student Responses
		- ● Complete Analyzing the Work of Teaching 3.1 on pg 39
		- ● See solutions in Figure 3.2 what questions do you have? Complete Pause and Consider from page 44
		- ● Complete Pause and Consider on page 57
		- ● Watch Anticipating Student Responses on page 65 and note one thing you notice or wonder.

· 9/13 & 15 Week 5: Burton Arithmetic Algorithms, student thinking & representations

o HW due 9/15: Chapter 4: Monitoring Student Work

* + - Complete Analyzing the Work of Teaching 4.0 on pages 73-4 & 4.1 on page 76-77 & 4.3 on page 82-83 & 4.4 on page 86 & 4.5 on pages 88-89
		- HW due 9/15: Read article in Canvas and watch student interview video in Canvas. & write a reflection in your math journal.

9/20 & 22 Week 6: Dailey Examining student work- giving feedback

* + For Next Class: Read Chapter 5: Selecting and Sequencing Student Solutions
		- Complete Analyzing the Work of Teaching 5.1 pg 107 & 5.2 pg 123
	+ Watch the video on Canvas and answer the questions from Canvas in journal

· 9/ 27 & 29 Week 7: Burton Multiplication, manipulatives and feedback

* + **HW: Analyzing Class Data Due 9/30 8am on Canvas**

· 10/ 4 & 6 Week 8: Dailey Multiplication & Interviewing

o HW: Create interview protocols for a primary student involving arithmetic standards matching the assigned grade level. List the standard that aligns with each question. Bring this to class

· 10/ 11 & 13 Week 9: Burton: Multiplication, Observing students,

o HW due 10/11 Create an interview protocol for an intermediate student involving multiplication standards matching the assigned grade level. Create a trajectory for the skills required from your primary interview to this one. Bring this to class

o HW due 10/13 Complete a student observation protocol and reflect upon what you now know about the student based on this observation during instructional time. Bring this to class

· 10/18 & 20 Week 10: Dailey Literature and Music in Learning

* + **HW due on Canvas 10/18 by 8am Student Thinking Portfolio**

· 10/25 & 27 Week 11: Dailey Communicating with guardians and Community Connections

o Read Chapter 6: Connecting Student Solutions

· Complete Analyzing the Work of Teaching 6.1 pg 144, 6.2 pg 146, 6.3 pg 148, 6.4 pg 151, 6.5 pg 157, & 6.6 pgs 163-4.

· 11/1 & 3 Week 12: Dailey Creating a lesson based on assessment data and learning trajectories

o HW: Read article in Canvas

· 11/8 & 10 Week 13: Burton Using learning trajectories to forward mathematical discussions

o HW: TBA

.

· 11/15 & 17 Week 14: Dailey Practices and Processes/ Integrating Community and Culture

o HW Submit Reading and Practice Reflections

***Nov. 22-26 Thanksgiving Break***

* 11/29 & 12/1 Week 15: Burton Cognition, affect and equity
* o 1**1/29 Take Learning Trajectories and Assessment Test in class**

**Assignments/Projects:**

1. Reading and Practice Reflections: Completing the math journal entries, which are reflections of readings and activities done in class is a way to document your learning. Examples of class activities that may be listed in your journal are notes from observations of videos done in class or an examination of student work that is passed out in class. The reflections from your readings will be approximately ½-1 page long and will be noticings that you want to discuss in class. These can be things you didn’t understand, things that surprised you, things you want to remember, or things that relate to your experiences. Each class will begin with small group discussions on reflections. In addition, there will be practice activities in class that are important in your professional growth.

2. Learning Assessment Test: By the end of this course, you should have a firm grasp of learning trajectories in numbers and operations. In addition, you should have experience interviewing, analyzing student work, and assessing student thinking. You will complete an assessment in which you apply these skills.

3. Student Thinking Portfolio: Through various experiences (videos, student work samples, interviews and observations) you will create a reflection about student thinking. 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.

a) Student observation protocol: Complete a student observation protocol. This should demonstrate your understanding of assessment and learning trajectories. While behaviors related to management may be noted, the observations should focus on student thinking, understanding, and misconceptions.

b) Interview protocol: Create, implement and analyze a protocol for primary students that assesses their understandings of quantity, numbers, and subitizing.

Create a protocol for intermediate students that assesses their understandings of multiplicative understanding. List the trajectory of skills between the primary and intermediate content.

c) Notes and Interview responses: Share notes and interview responses

c) Reflective Paper: You will type a 3-4-page double spaced paper reflecting on the mathematical thinking and problem solving observed in the student examples you were provided. You will also provide suggestions to support their learning and reflect upon what you learned about teaching and learning from this. You will apply your pedagogical content knowledge and citations from the math course readings to discuss your notes. You will need to specifically connect specific math problems and strategies of your students to specific content in the text (citations are needed).

4. Analyzing Classroom Data: Using a class set of data. Show your ability to analyze the results and plan future instruction.

7. Low Floor/ High Ceiling Task: Create a task that is low floor and high ceiling. Share what standard it addresses, possible responses

8. Community Assessment Project: Using the resources provided in your folder, create three problems that would bring in the community of your students described in your folder. For each problem list the standard (each problem must address a different standard), the problem, the solution, and the context

\***Assignments/Projects:**

|  |  |  |
| --- | --- | --- |
| **Due Date** | **Assignments** | **Points** |
| 8/30/21 | Low Floor High Ceiling Task  | 10 points |
| 9/8/21 | Community Assessment Project  | 10 points |
| 9/30/21 | Analyzing Classroom Data   | 15 points |
| 10/18/21 | Student Thinking Portfolio   | 25 points |
| 11/15/21 | Reading and Practice Reflections | 15 points |
| 11/29/21 | Learning Assessment Test  | 25 points |

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

* + 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. Please save all files with your last name and assignment type in the filename.
	+ 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.**

**2.** **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

**3.** **Class Policy Statements:**

* + 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.** Students will be counseled and placed on an attendance contract in order to continue in the course.
	+ 2. Five points will be deducted from the final grade for any unexcused absence from class. **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.
	+ **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/>).
	+ **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).*
	+ **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).
	+ 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.
	+ Names and Pronouns: Many people might go by a name in daily life that is different from their legal name. In this classroom, we will refer to people by the names that they go by. Pronouns are a way to affirm someone's identity. They are simply a public way in which people are referred to in place of their name (e.g. "he" or "she" or "they" or "ze" or something else). In this classroom, you are invited to share what pronouns you go by, and we will refer to people using the pronouns that they share.
	+ Course contingency: If normal class 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.
	+ 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 unless otherwise instructed by the professor.
* \*\* Covid 19 Note/ Masks Required in Class until notified **by instructor:**
	+ The university permits individual faculty members to require face coverings in their classrooms and instructional laboratories. All students enrolled in this course are required to properly wear a face covering that covers the nose and mouth while inside the classroom, laboratory, studio, or office. Failure to comply with this requirement represents a potential Code of Student Conduct violation and may be reported as a non-academic violation. Please consult the [Classroom Behavior Policy (Links to an external site.)](https://sites.auburn.edu/admin/universitypolicies/Policies/PolicyonClassroomBehavior.pdf) for additional details.
	+ Your health and safety, and the health and safety of your peers, are my top priorities. If you are experiencing any symptoms of COVID-19, or if you discover that you have been in close contact with others who have symptoms or who have tested positive, you should not attend in-person classes. You will not be penalized for such an absence nor will you be asked to provide formal documentation from a healthcare provider. My hope is that if you are feeling ill or if you have been exposed to someone with the virus, you will stay home to protect others. I don’t want the need for documentation to discourage you from self-isolating when you are experiencing symptoms.
	+ Please do the following in the event of an illness or COVID-related absence:
	+ · Notify me in advance of your absence if possible
	+ · Keep up with coursework as much as possible
	+ · Participate in class activities and submit assignments electronically as much as possible
	+ · Notify me if you require a modification to the deadline of an assignment or exam
	+ Finally, if remaining in a class and fulfilling the necessary requirements becomes impossible due to illness or other COVID-related issues, please let me know as soon as possible so we can discuss your options.
	+ **Health and Well-Being Resources**
	+ These are difficult times, and academic and personal stress is a natural result. Everyone is encouraged to take care of themselves and their peers. If you need additional support, there are several resources on campus to assist you:
	+ · [COVID Resource Center](http://auburn.edu/covid-resource-center/)
	+ · [Student Counseling and Psychological Services](http://wp.auburn.edu/scs/)
	+ · [AU Medical Clinic](https://cws.auburn.edu/aumc/)
	+ · If you or someone you know are experiencing food, housing or financial insecurity, please visit the [Auburn Cares Office](http://aucares.auburn.edu/)
	+
	+ **Title IX Statement**
	+ Auburn University is committed to providing an environment that is free from discrimination and harassment based upon protected class. If you believe you have been the victim of harassment or discrimination based on race, color, religion, national origin, disability, age, or sex (including sexual orientation, gender identity, and gender expression), we encourage you to report it. If you report sexual assault or sexual misconduct to a faculty member, the faculty member is obligated to notify the University’s Title IX Coordinator about the basic facts of the incident. For more information about your Title IX reporting and resource options at Auburn University, please go to: [Title IX](http://www.auburn.edu/titleix)