AUBURN UNIVERSITY

**CTEE 4040 Curriculum: Mathematics**

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| **Term:** Spring 2024 | **Credit Hours:** 4 semester hours |
| **Pre/ Co-requisites:** This section is restricted to Elementary Education majors enrolled in CTEE 4030: Natural Science |
| **Class Day/Time:** Tuesdays 8 a.m. -10 a.m. **Lab**: MW 7:30 a.m.-3:30 p.m. and an occasional Friday and 1 full week in the field (see calendar for exact schedule) | **Room:** Haley 2414 |
| **Instructor:** Dr. Megan Burton | meb0042@auburn.edu |
| **Cell**: 334-332-1818 (personal) | **Office**: HC5020 |

**Required Texts and Materials:** SanGiovanni, J. J., Katt, S., Knighten, L. D., & Rivera, G. (2021). *Answers to your biggest questions about teaching elementary math: Five to thrive [series]*.

Corwin Press. ISBN 10# 1071857711

* Technology (access to a computer/tablet and Internet connection), face mask, a composition notebook, school pouch with supplies (tape, markers, pencil, black ink pen, colored pencils, markers, white out, index cards), materials needed to construct instructional charts, games, and other teaching resources, COE name button [see the LRC for buttons].
* **Field-based experience practicum**: The *Field Placement Lab Manual*
* **Alabama Course of Study: Mathematics** <http://alex.state.al.us/ccrs/node/74>

**Course Description:** This course examines the principles, current research, and approaches to the teaching and learning of elementary school mathematics. It also explores the relationship between pedagogy and mathematics understanding appropriate for the instruction of children in kindergarten through sixth grade. Through this course, candidates explore and use major concepts and procedures related to teaching elementary mathematics content (geometry, numbers and operations, fractions, algebra, measurement, probability, and data analysis). Candidates plan, implement, and reflect upon appropriate mathematics lessons and curricular materials for the (K-6) classroom that involve rigorous tasks with various entry levels based on the state standards and standards produced by the National Council of Teachers of Mathematics. Lessons build conceptual and procedural understanding while promoting problem solving, reasoning, mathematical communication, make connections, an represent their mathematical thinking., discourse, and engage students in real-life problematics situations. They analyze appropriate assessment data to explain student strategies, provide student feedback to build conceptual understanding and procedural fluency, and plan for future intellectual, social, and emotional growth. Candidates have professional conversations with others about their teaching, and revise professional practices based on these experiences.

This course requires a field placement where students will have an elementary classroom placement for 70 clock hours over the semester (Monday, Wednesday, & Friday and one full week) in the same placement as other coursework with field placements and additional hours. During this placement, students will have increasingly more responsibilities and opportunities to practice teaching. They are placed in schools to have a chance to teach children according to the theory and methods presented in their university courses, along with the guidance and modeling their clinical educator provides, which meet state and national standards. We expect students to be working with children and co-teaching as much as possible during this field placement.

# Student Learning Outcomes:

**Goal:** To critically analyze curriculum and the process of teaching and learning mathematics in the elementary grades

**Objectives:** After the completion of the course and the clinical based lab, the pre-service teacher should:

1. Describe and effectively 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.
2. Effectively use 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.

1. 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.
2. 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.
3. 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.
4. Plan and implement individual and group activities that emphasize student participation. Plan and analyze appropriate assessments in order to monitor K-6 student learning and progress.
5. Exhibit professional dispositions including preparedness for each class, active participation in all class activities, collaboration with peers, respect for diverse perspectives, proactive communication with instructors, reflection of personal cultural frames of reference, and responsibility in the field.
6. Reflect on their own teaching practices and consult with other professionals in order to grow

professionally.

1. 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.

**Class format:** The delivery modality for this course instruction is face-to-face with synchronous meetings on campus. There is no remote attendance option via Zoom for a class meeting on campus.

**Lab**: In addition, this course has a field placement component. Students will be assigned a placement in a school where they will spend time observing and teaching every Monday and Wednesday throughout the semester with one full week as well. **See Lab Placement Handbook.**

**Assessments of Learning** *The table below shows the alignment between course assignments and the Alabama CIEP Accreditation Standards. Detailed directions and rubrics will be provided for each assignment. \*Denotes a CIEP Key Assessment.*

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| **CIEP Standard** | **Assignment** |
| *Standard 1, 2.3.3* | \*Lesson plan and reflection |
| *Standard 2.3.1, 2.3.2, 3.2, 4* | \*Effects on Student Learning |
| *Standard 2.3.1, 2.3.2* | Pedagogical Content Knowledge Test |

# Course Assignments/Projects:

* + Pedagogical Content Knowledge Test (50 points): By the end of the course, you should have a firm grasp of the pedagogical content knowledge that you will teach, including how children understand and develop awareness of mathematical skills. In addition, you should have

experience identifying the Mathematics Teaching Practices and Standards of Mathematical Practices. You will complete an assessment in which you apply these skills, along with your demonstration of the understanding of common elementary mathematics strategies and representations.

* + Lesson Plan 1 and Reflection (100 points): Your task will be to write and teach a whole-group math lesson plan that aligns with the Alabama Course of Study mathematics standards for the appropriate grade level, the Math Teaching Practices, and encourages students to use the Standards of Mathematical Practices. You will then teach and record the written lesson plan, provide feedback to students, self-assess, and write a reflection on the experiences.
	+ Lesson Plan 2 and Effects on Student Learning (100 points): Following a whole-group assessment, you will analyze the data set, look for overall patterns of learning, provide effective feedback, and determine a small group of students from the analysis who share an identified common learning goal. With this goal as the focus, you will create a lesson to the small group of learners. You will examine data, create a table, share results and justify small group pairings, plan a reteach lesson, analyze that assessment data and provide effective feedback to the students on their work samples.
	+ Reading and Practice Reflections Journal (60 points): During the semester, you will complete various entries in your math journal within 3 categories: 1) Math Starters, 2)Class Activities,

3) Reading Responses. Journal entries will include but are not limited to reading responses, reflections, notes, class activities, and practice to document your learning. Also, while in your field placement, you will take notes of specific examples of students demonstrating the Standards of Mathematical Practices and your teacher (or yourself when teaching) using the Mathematics Teaching Practice. The journal entries are designed to help you make connections between the readings, mathematical content, and practicum fieldwork. The journal is to be brought into each class meeting.

* + Math in the field (20 points): While in field placement, you will document and make notes of the specific, detailed examples of the Standards of Mathematical Practice (SMPs) students exhibit and specific examples of the Mathematics Teaching Practices either your cooperating teacher or yourself exhibit.
	+ Math Center (30 points): Math centers can be used for discovering a new topic/strategy, reinforcing/practicing something already learned, or expanding on a specific topic (extension). In groups, you will design a math center or station that you would like to use in your future classroom. You will design the center with the aligned standard, objectives, and assessment method and present it for others to try out. After, you will write a reflection about the experience.
	+ In-Class Participation and Activities (5 points each, 60 points total): During class meetings, you will complete activities both independently and participate with your classmates in whole and small groups. Growth and learning are dependent on being present and actively engaged; thus you are expected to fully participate. Participation can include but is not limited to contributions to discussions, reflections, exit slips, math puzzles, games, or activities, as well as working with group members in learning activities.

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| **Grading:** | A: 90-100% of total points | B: 80-89% of total points | C: 70-79% of total points |
| D: 60-69% of total points | F: 0-59% of total points |  |

*A note about rounding: For final grade averages with the decimal grade point less than 0.5, the grade is rounded down to the nearest whole number, and when the decimal grade point is greater than or equal to 0.5, the grade is rounded up to the nearest whole number.*

* Assignments should be submitted on time and completed in a thorough manner. Submitted assignments that are incomplete or not submitted by the due date will lose points equal to one letter grade for each day up to the third day past the due date, excluding the course final which cannot be submitted or completed past the due date.
* Students must have satisfactory marks on all areas of the COURSE and FIELD PLACEMENT by the end of this course term 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.
* If extenuating circumstances arise where you are concerned about completing an assignment by the due date, contact me to discuss the possibility of an extension at least 24 hours prior to the due date.
* If students have a concern with a specific grade received, please know I am willing to meet with them in order to discuss their learning, understanding, and effort.
* 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 the total required lab hours and Standards on the *Final Lab Placement Form* in order to pass this course. **See Lab Placement Handbook.** If a student has an unexcused absence in field placement the grade will be lowered by 1 letter grade. Please contact the professor prior to absence if you have any questions about this.

# Class Policy Statements:

**Technology:** Students are responsible for checking their Auburn University email and Canvas accounts daily for announcements.

* In class: As research on learning shows, unexpected noises and movement automatically divert and capture people's attention, which means you are affecting everyone’s learning experience if your cell phone, watch, laptop/tablet, etc. makes noise or is visually distracting during class. For this reason, I ask you to silence and/or turn off your phones, close your laptops, and put away your personal devices, unless instructed to use as part of the lesson/activity in class. *\*If you have an emergency, children, someone in your care, or similar circumstances, please communicate with me privately about keeping your device on silent prior to class.*
* When students are asked to use personal devices (e.g. laptop or tablet) for learning activities during class, they should not use the devices for completing another course’s assignments, for social media purposes, Internet surfing, texting/messaging, or other non-class related activities during class. If this becomes an issue or distraction, a student may be asked to leave the class session.
* Internet Access: This course utilizes Canvas as an online component; thus, students must have access to a working computer and reliable access to the Internet. Students can also use an on- campus computer lab, public library, etc. if needed to ensure access. Make sure to plan ahead with a back-up plan in case of technical problems. For Canvas issues, please reference [Biggio](http://wp.auburn.edu/biggio/helpguides/student-self-help/) [Center's Student Self-Help for Canvas Page.](http://wp.auburn.edu/biggio/helpguides/student-self-help/)
* Tech issues: Much of this course is hosted in Canvas (assignment dropboxes, resources, etc.) and may require students to troubleshoot their own technology problems. Troubleshooting may involve working with the campus help desk, LRC, or peers, or I am available to try and help during my office hours. Technical issues cannot be used as valid excuses for missing assignments. Make sure to save and back up your work. After submitting work in Canvas, immediately check to see if it is captured as submitted in the dropbox or under grade lists.

**Face Coverings:** All enrolled students in this course are required to properly wear a face covering that covers both the nose and mouth while inside the classroom, regardless of vaccination status. 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 [Policy on Classroom Behavior](https://sites.auburn.edu/admin/universitypolicies/Policies/PolicyonClassroomBehavior.pdf).

**Attendance:** Attendance is required and taken at each class meeting.

* + Class Format: The delivery modality for this course instruction is face-to-face with synchronous meetings on campus. There is no remote attendance option via Zoom for a class meeting on campus.
	+ Excused absences are granted to students as defined in the Auburn University [*Student Policy*](http://www.auburn.edu/student_info/student_policies/)[*eHandbook*](http://www.auburn.edu/student_info/student_policies/), and include the following: death of an immediate family member, trips for a university-sponsored organization, intercollegiate athletic events, subpoena for court, or religious holiday. When feasible, the student must notify the instructor prior to the occurrence of any excused absence(s), but the student must provide appropriate documentation to the instructor the day the student returns to class and no later than one calendar week from the absence. Appropriate documentation for all excused absences is required.
	+ After two unexcused absences in class, the final grade will be lowered one letter grade. At the third unexcused absence, the student will have a conference with the elementary education faculty.
* If a student has an unexcused absence in field placement the grade in all associated courses will be lowered by 1 letter grade. Please contact the professor prior to absence if you have any questions about this.
	+ Additionally, a budding professional demonstrates consistent attendance and punctuality. You are expected to arrive to class by the start time and stay through the class time. Any combination of tardies or leaving class early that sums to three will be counted as one unexcused absence.

# Make-Up Policy:

* + In-class participation and activities require the student to be present in class meetings; therefore, participation and work completed in class cannot be made up. Students not present cannot earn points for activities completed in class.
	+ Students with an excused absence are excused (marked in Canvas) from the class participation/in-class assignment and are not penalized. Excused assignments/grades neither harm nor help the student’s overall course grade.
	+ Unexcused absences will receive no points, a zero, for the missed in-class assignment/class participation.
	+ Arrangements to make up missed major examinations 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 the 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 specified by the instructor.

**Accommodations:** Students who need accommodations should electronically submit their approved accommodations through AU Access and arrange a meeting with the instructor during office hours the first week of classes or as soon as possible if accommodations are needed immediately. We can arrange an alternate time if you have a conflict with my office hours. To set up this meeting, contact me by e-mail. If you need accommodations but have not yet established them, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096.

Once a student has established accommodations with the Office of Accessibility and submitted them through AU Access, the student is held responsible for arranging a meeting with the professor to discuss their applied accommodations for the course. The meeting can be in person (face-to-face), over the phone, or through e-mail. Discussions regarding accommodations are confidential and private. Students do not need to disclose the nature or basis for their accommodations; it is the student's decision whether to share details or not. Accommodations are placed in effect immediately following the meeting.

**Academic Honesty:** Some assignments will involve integrating readings and websites into your reflections, assignments, and lessons. Plagiarism is the act of representing words, data, works, ideas, computer programs or output (e.g., created by an AI or other program), or anything not generated by the student as their 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 the work. All work is to be done individually, unless otherwise specified. All submitted assignments are subject to a plagiarism check.

* + Cheating, plagiarism, or any other form of academic dishonesty will not be tolerated and will be handled accordingly. Any student who is found committing academic dishonesty on any assignment will receive a grade of zero on that assignment. In addition, the student's final grade in the course will be dropped by one letter grade. Neither of these penalties is negotiable. It will be up to the instructor's discretion to take further action based on the perceived severity of the offense.
	+ All portions of the Auburn University student academic honesty code (Title XII) found in the [Student](http://www.auburn.edu/student_info/student_policies/) [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.
* Using AI tools responsibly is an emerging skill. This course encourages awareness of AI's capabilities and limitations. When used appropriately as a drafting aid, AI can help develop ideas and refine work. However, directly copying or passing off AI-generated content as one's own violates academic integrity. To uphold quality and transparency, please follow the following guidelines.
* First, evaluate AI-generated text critically before adopting it as your own. Fact-check claims and watch for factual errors or omissions. You are responsible for content you submit.
* Second, disclose any use of generative AI tools by briefly explaining how you used them to assist your process. For instance, you might describe using a tool to help brainstorm ideas or check grammar. This promotes transparency.
* Third, focus prompts on clarifying your own thinking rather than outsourcing it. High-quality prompts elicit outputs that aid your learning and original analysis. Make sure to save the prompt language that you use, and include this language in your disclosure of AI use statement

**Title IX Statement:** Auburn University is committed to providing an environment free of discrimination and harassment and is equally committed to the principle of equal opportunity in education and employment. The University does not discriminate or tolerate Discrimination or Harassment against individuals on the basis of sex, (sexual orientation, gender identity, and gender expression), race, color, religion, national origin, age, disability, genetic information or protected veteran status

(collectively, “Protected Status”). 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 Title IX policy against discrimination and harassment, reporting and resource options at Auburn University, please go to: [Title IX](http://www.auburn.edu/titleix)

**Professionalism:** 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 take part in discussions. Professionalism is more than simply being physically present in the classroom. In this course you will be expected to treat group members 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.

* 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
	+ Diversity of learners
* Budding professionals use appropriate means for discussions: Please respect our class time together and my own time as a teacher and researcher by planning to discuss grades or other points of discussion/contention during my office hours or by an appointment.
* Budding professionals take responsibility for their learning: My overarching goal is to support class members in becoming the best they can at this point in their professional development. Please allow me to assist in the possible ways including listening, providing feedback, answering questions, addressing concerns, brainstorming, clarifying course content or expectations, and facilitating work with collaborating peers. Email is the surest way to contact me outside of class, and while I do check my email regularly, during my office hours, I will respond immediately to emails, provided I am not meeting with a student at that moment. Outside of office hours, I do not check email after 9 pm on weekdays. Please allow me up to 72 hours to respond to email. If you have an emergency, please call my cell phone (personal number) on the syllabus.
* Additionally, If you are struggling academically with this class, **do NOT wait until the end of the semester to ask for help.** Your instructor is here to help you but cannot provide help unless you communicate the problem. You are strongly encouraged to reach out early in the course and follow-up whenever you encounter challenges with the material.

**Course Contingency:** If class meetings are disrupted due to faculty 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, an addendum to this syllabus and/or course assignments will replace the original materials.

**Guidelines Related to COVID:** Your health and safety and of your classmates are of utmost priorities as we continue to navigate this global pandemic. If you are experiencing any symptoms of COVID- 19, or if you have had a direct exposure, follow the continually updated guidelines on the [COVID](http://auburn.edu/covid-resource-center/reporting/) [Resource Center website](http://auburn.edu/covid-resource-center/reporting/).

**Possibility of Transitioning to Remote Instruction:** In the event that the University moves to fully online instruction, please be assured that the learning goals and outcomes of the course will not change; however, some aspects of the course will change in terms of the mode of delivery, participation, and assessment methods. If an announcement is made for remote instruction, I will communicate with the class about course changes and will work with students to revise a course calendar. Please be prepared for this contingency by ensuring that you have access to a computer and high-speed Internet.

**Health and Well-Being Resources:** As these are difficult times, personal and academic stress can take a toll and increase effects. If you find yourself in need of any additional support, the following are resources on campus to assist:

* + - [COVID Resource Center](http://auburn.edu/covid-resource-center/)
		- [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/)

**Basic Needs**

* Any student who faces challenges securing their food or housing and believes this may affect their performance in the course or others is urged to contact Auburn’s Basic Needs Center for support at <https://aub.ie/basicneeds>. Furthermore, please notify the professor if you are comfortable in doing so as this will allow the faculty member to connect you with any other known resources.

# Mental Health:

* + - If you are experiencing stress that feels unmanageable (personal or academic) during the

semester, Auburn University’s [Student Counseling and Psychological Services](http://wp.auburn.edu/scs/) (SCPS) offers a variety of services to support you. The mission of SCPS is to provide comprehensive preventative and clinical mental health services to enhance the psychological well-being of individual students, as well as the broader campus culture. As an instructor, I am available to speak with you regarding stresses related to your work in this course, and I can assist in connecting you with the SCPS network of care. You can schedule an appointment yourself with the SCPS by

calling (334)844-5123 or by stopping by their offices on the bottom floor of Haley Center or the second floor of the [Auburn University Medical Clinic.](http://auburn.edu/map/?id=150)

* + If you or someone you know needs to speak with a professional counselor immediately, the SCPS offers counseling during both summer term as well as the traditional academic year. Students may come directly to the SCPS and be seen by the counselor on call, or you may call (334)844- 5123 to speak with someone. Additional information can be found at [http://wp.auburn.edu/scs](http://wp.auburn.edu/scs%20%C3%82%C2%A0)

**Tentative Course Content and Topics Outline:** *Detailed directions, requirements, rubrics, and listed due dates will be provided for each assignment in Canvas.*

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| **Week** | **Topic(s)** |
| **2** | Introductions, What Is Effective Math Teaching, Teaching Principles & Revisiting the Standards |
| **3** | Lesson planning |
| **4** | Revisit algorithms- activities and suggestions using concrete and pictorial representations |
| **5** | Fractions- using virtual, concrete and pictorial representations |
| **6** | Fractions- Computation |
| **7** | Decimals, Fractions and Percent |
| **8** | Student grouping and group work |
| **9** | NO CLASS – in field placement all week |
| **10** | Literature in mathematics and cross-curricular connections |
| **11** | Measurement |
| **12** | Geometry |
| **13** | Data Analysis, Probability |
| **14** | Differentiation, Equity in mathematics, adapting plans and resources for learner needs |
| **15** | Next steps, professional goals, and wrapping up; final exam |

*The Right to Change: The instructor reserves the right to modify the course syllabus, class schedule, alter classroom policies and has freedom to cover course topics at their discretion in order to meet learning objectives, compensate for missed class, or for similar reasons. Students will be notified of any change that affects course structure or has the possibility of altering student outcomes.*