

THE UNIVERSITY OF ALABAMA

Course Inventory

Date 10/1/17 Department C&I College Education

PROPOSAL TO OFFER A NEW COURSE, CHANGE AN EXISTING COURSE; OR DELETE AN EXISTING COURSE

(Please attach a copy of course syllabus for Office of Academic Affairs)

Course No. CSE 406

Add _____ Change x _____ Inactivate _____

Type of modification:

Title _____ Description _____ Credit hours _____

Type x _____ Grade _____

Number _____ Old _____
New _____

Classification of Instructional Programs (CIP) # _____

Title Curriculum in Secondary Mathematics

Short Title (30 characters or less) Curriculum Secondary Math

FILL IN ALL REMAINING PARTS FOR A NEW COURSE, BUT MARK ONLY THE APPLICABLE PORTIONS FOR CHANGES TO AN EXISTING COURSE.

DESCRIPTION:

Future secondary mathematics teachers examine advanced concepts, structures, and procedures that comprise secondary mathematics.

This course focuses on current issues and trends in the curriculum, teaching, and learning of secondary mathematics

with emphasis on the investigation and implementation of current reform efforts. Offered spring semester only. Admission to Teacher

Education Program is required. Writing proficiency within the discipline is required for a passing grade in this course.

1. Credit Hours 3

2. Prerequisites C- CSE 401; C- in CSE 390

3. Corequisites _____

4. Cross Listed (Equivalent Courses) _____

Cross listed courses refer to the same course offered at the same level by different departments at the same time in the same room.

5. Slash Listed (Equivalent Courses) _____

Slash listed courses refer to the courses offered by the same department at different levels.

... Please note policy regarding slash listing of courses for undergraduate and graduate credit on reverse side of this page. Attach separate forms for graduate and undergraduate slash-listed courses, and ensure that the catalog descriptions and course requirements reflect the graduate/undergraduate differentiation.

6. Mark one of the following course grading patterns:

(a) Letter grade x _____

(b) Pass/fail _____

7. Indicate one of the following types of instruction:

(a) Seminar _____

(c) Independent Study _____

(e) Thesis/Dissertation _____

(g) Recitation/Discussion/Quiz _____

(i) Activity/Performance/Studio _____

(k) Research _____

(m) Blended _____

(b) Lecture x _____

(d) Laboratory x _____

(f) Field Experience _____

(h) Lecture/Laboratory _____

(j) Clinic _____

(l) Online _____

(n) Lec w/Recitation/
Discussion/Quiz _____

8. Attributes

(a) Service Learning _____

(b) Honors _____

9. If this is a change for an existing course, indicate the nature of the change, and whether substantive changes have been made in either course content or requirements, and list programs that might be affected by the change.

Course is not changing other than adding the "W" attribute. The course already has had for years using the NCTM SPA assessment

as the end of course major assignment, a writing component. Existed at midterm as well, now seeking to add "W".

10. Maximum Repeat: 6 (Total number of credit hours; not total number of times)

11. If the content of this course might overlap with other existing courses, describe your efforts to consult other departments about potential course duplication.

Does not overlap with any other UA course, nor COE course.

Department Head:

Cynthia Surral
Signature

10/19/17
Date

Angela O. Benson

10/30/17
AIC Chair

Secondary Mathematics Curriculum – CSE 406
CRN XXX Spring 20XX
Days/Times (3 credit hours)
Location (Building & Room)

Instructor Information:

Jeremy S Zelkowski, PhD
Office Hrs:

jzelkowski@ua.edu

212A Graves Hall
205-348-9499

Instructor Information:

Justin D Boyle, EdD
Office Hrs:

justinb@ua.edu

223A Graves Hall
205-348-3474

Course framework: The vision of the College of Education (COE) at The University of Alabama is to develop effective, ethical, and reflective professionals who advance the theme of the COE: **Unites, Acts, and Leads (UA Leads)**. By engaging in theoretically informed and intellectually advanced effective practice our graduates will



UNITE with the larger community to collaboratively nurture cultural competence, empathy, and a vision of equity and justice for all learners;

ACT to develop the full potential of all learners to be excellent professionals in their field; and

LEAD through continuous research-based critical inquiry of policy and reflective practice to enable transformative change in our diverse local and global communities.

Course catalog description: Future secondary mathematics teachers examine advanced concepts, structures, and procedures that comprise secondary mathematics. This course focuses on current issues and trends in the curriculum, teaching, and learning of secondary mathematics with emphasis on the investigation and implementation of current reform efforts.

Writing proficiency within the discipline is required for a passing grade in this course.

Course prerequisites: Passing grade of C- in CSE 401 and CSE 390.

Instructor's personal statement about the course: HERE

Dispositions: We strive to create programs that emphasize Fairness and Equity, Reflective Stance for Professional Practice, a Commitment to Diversity, and a Culture of Collaboration.

Course Objectives:

The professor will provide opportunity for students to learn about secondary mathematics curriculum, pedagogy, instructional strategies, and write high quality lesson plans.

Student Learning Outcomes: Students will be expected to demonstrate knowledge and advancement of...

1. **Lesson Plan Development** – Lesson plans will be developed during this course. Each lesson plan will utilize the template posted in LiveText. Mastery of this objective will allow the methods course to focus more deeply and specifically on the writing of unit plans and making mathematical connections between lesson plans over longer periods of time. The lesson plan writing requires coherent, logical, and carefully edited language that specifically addresses many of the course objectives below. You will be expected to demonstrate increased critical thinking, analysis, and synthesis of the course readings as they apply to your writing.
2. **Technology Use** – It is expected that the knowledge from CSE401 will be extended into objective #1 during the course. Additional technologies absent from CSE401 that enhance student understanding of mathematical topics may be incorporated into this course.
3. **Cognitive Task Levels** – Many secondary mathematics classrooms in America today are dominated by low-level cognitive tasks. This course will begin the development of understanding high-level cognitive tasks for all students, as well as the inclusion of high-level tasks in objective #1.
4. **Mathematical Flexibility and Reversibility** – These concepts are of great importance for excellent mathematics teaching. In this course, students will focus on learning how to design lessons that incorporate both of these concepts. Flexibility refers to delivering problem solving and concept attainment through multiple approaches. Reversibility refers to reversing the normal or forward thinking process during problem solving to enhance problem solving ability.
5. **Teacher as Facilitator** – This course begins PST development and understanding of what it means to be a teacher that facilitates learning in the classroom through questioning and high-level tasks, rather than solely through direct instruction and repetition of low-level cognitive tasks.
6. **Mathematics Curricula** – This course will introduce mathematics curricula. Discussion of the challenges of these curricula will be part of this course. One of the lesson plans of objective #1 will consist of utilizing an integrated curriculum to enhance the development of a traditional lesson to include high-level cognitive tasks when otherwise would not be included.
7. **The Standards for Mathematical Practice** – Students will begin understanding what these 8 standards look like in the classroom and how they shape lesson design for meeting the Common Core Standards.

8. **MCOPP** – Mathematics Classroom Observation Protocol for Practices. Students will begin to use and understand this observation protocol which will be used for observations in the subsequent methods block semester during observed teaching. Students will view and evaluate, then discuss, classroom videos with this protocol.
9. **Collegiality** – Students will participate in group-work, classroom observations of teaching, and learn the significant benefits of working together in education.
Assignments completed as a group—students may only work with the same individuals once during the semester on a group project.
10. **Assessment** – Students will create assessments during lesson plan writing. Students will explore multiple forms of assessment. Students will form groups and discuss assessments already created and work to improve the assessments and determine what is they are supposed to be assessing in their own writing. Assessments must allow for students to use technology during any assessment. Examination of released PARCC and SBAC consortia assessment items, as well as ACT type items.
11. **Mathematics Curricula (align with state standards including mathematics practice standards for students and mathematics teaching practices for teachers)** – This course will introduce mathematics curricula. Discussion of the challenges of these curricula will be part of this course. In this course we will work from reform curriculum to plan a lesson and enact it. You will learn to plan your lesson, but will also be asked to think about how lessons build upon one another mathematically.
 - a. **Classroom and Curriculum Standards** – Students will be heavily involved with linking Alabama State standards into assignments, lesson plans, and discussion. Students will explore the Common Core of State Standards for Mathematics, paying particular attention to upcoming assessments.
12. **Creating your teaching philosophy and portfolio** – All of the above, along with course assignments will allow you achieve and demonstrate this objective.

Required Course Texts/Materials (discount available to NCTM members on website):

Brahier, D. (2013). *Teaching secondary and middle school mathematics* (4th edition). Boston, MA: Pearson.

National Council of Teachers of Mathematics (2000). *Principles and Standards for School Mathematics*. Reston, VA: NCTM. (*e-version available as NCTM student member, hard copy not required*)

NCTM (2014). *Principles to Actions: Ensuring Mathematics Success for All*. Reston, VA: Author.

Stein, M.K., Smith, M.S., Henningsen, M.A., & Silver, E.A. (2009). *Implementing Standards-Based Mathematics Instruction: A Casebook for Professional Development* (2nd edition). New York, NY: Teachers College Press.

Smith, M.S. & Stein, M.K. (2011). *Five Practices for Orchestrating Productive Mathematics Discussions*. Reston, VA: NCTM

Various Other Resources (Provided by instructor or available thru UA libraries or SEMA program check out)

- Lee, H.S., Hollebrands, K.F., & Wilson, P.H. (2010). *Preparing to Teach Mathematics with Technology: An Integrated Approach to Data Analysis and Probability (revised printing)*. Raleigh, NC: Kendall Hunt. ISBN: 978-1-4652-0001-3
- Hollebrands, K.F. & Lee, H.S. (2012). *Preparing to Teach Mathematics with Technology: An Integrated Approach to Geometry*. Raleigh, NC: Kendall Hunt. ISBN: 978-1-4652-0386-1
- Bush, W. S., & Greer, A. S. (1999). *Mathematics Assessment: A Handbook (series)*. Reston, VA: NCTM.
- NCTM (varies). *Reasoning and sense making (series)*. Reston, VA: Author.
- TI-83 or TI-84 graphing calculator and/or the TI-Nspire Handheld and/or TE software
- Tinker Plots, Fathom, Excel, Geometer's Sketchpad, Geogebra
- A LiveText account at www.livetext.com

Strongly recommended

- Student Membership in NCTM (\$39 for one year, highly suggested for electronic access to NCTM book above rather than buying, illuminations lessons, and MT, MTMS articles!!!)
- Or, join the UA SEMA NCTM student affiliate group for \$5 for same benefits

Program Standards Assessed in this Course:

AL-290-3-3-.13(2)(a)—Mathematical Problem Solving. Prior to program completion, prospective mathematics teachers shall demonstrate knowledge of various problem-solving strategies, including reading and interpreting the problem; estimating the outcome; mathematical modeling; solving the problem, reflecting on the reasonableness of the answer, and using other methods of checking, including working problems backwards.

AL-290-3-3-.13(2)(c)2.— Mathematical Communication. Prior to program completion, prospective teachers of mathematics shall demonstrate the ability to: Analyze and evaluate the mathematical processes and strategies used by students.

AL-290-3-3-.13(2)(d)2.—Mathematical Connections. Prior to program completion, prospective teachers of mathematics shall demonstrate the ability to: recognize and apply mathematics in contexts outside of mathematics classes.

AL-290-3-3-.13(2)(e)2.—Mathematical Representation. Prior to program completion, prospective teachers of mathematics shall demonstrate the ability to: Create and use representations to organize, record, and communicate mathematical ideas.

AL-290-3-3-.13(2)(g)1.(i)—Mathematics Pedagogy. Prior to program completion, prospective teachers of mathematics shall demonstrate knowledge of: A wide variety of available mathematics curricula and teaching materials for all students including those with special needs such as the gifted, challenged, and speakers of other languages.

AL-290-3-3-.13(2)(g)1.(ii)—Mathematics Pedagogy. Prior to program completion, prospective teachers of mathematics shall demonstrate knowledge of: Developmentally appropriate and research-based strategies for teaching mathematics, including inquiry- and application-based instruction as advocated by the Alabama Math, Science, and Technology Initiative (AMSTI).

AL-290-3-3-.13(2)(g)1.(iii)—Mathematics Pedagogy. Prior to program completion, prospective teachers of mathematics shall demonstrate knowledge of: Professional mathematics organizations and their available print, online, and other resources.

AL-290-3-3-.13(2)(g)2.(i)—Mathematics Pedagogy. Prior to program completion, prospective teachers of mathematics shall demonstrate the ability to: Plan lessons, units, and courses that address appropriate learning goals, including those that address local, state, and national mathematics standards and legislative mandates.

AL-290-3-3-.13(2)(g)2.(ii)—Mathematics Pedagogy. Prior to program completion, prospective teachers of mathematics shall demonstrate the ability to: Use different types of instructional strategies in planning mathematics lessons.

AL-290-3-3-.13(2)(h)1.— Mathematics Content. Prior to program completion, prospective teachers of mathematics must demonstrate knowledge of: The secondary mathematics content as mandated in the Alabama Course of Study: Mathematics.

AL-290-3-3-.13(2)(g)2.—Mathematics Content. Prior to program completion, prospective teachers of mathematics must demonstrate knowledge of: The U.S. Department of Education’s National Mathematics Advisory Panel’s Final Report (2008) from the U.S. Department of Education and its benchmarks addressing the Critical Foundations of Algebra.

AL-290-3-3-.13(2)(h)10.(i)—Mathematics Content. Prior to program completion, prospective teachers of mathematics must demonstrate knowledge of: Measurement, including error analysis.

NCTM SPA Standards Assessed in this Course

Standard 2: Mathematical Practices

2a) Use problem solving to develop conceptual understanding, make sense of a wide variety of problems and persevere in solving them, apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts, and formulate and test conjectures in order to frame generalizations.

2b) Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; represent and model generalizations using mathematics; recognize structure and express regularity in patterns of mathematical reasoning; use multiple representations to model and describe mathematics; and utilize appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.

2c) Formulate, represent, analyze, and interpret mathematical models derived from real-world contexts or mathematical problems

2d) Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.

2e) Demonstrate the interconnectedness of mathematical ideas and how they build on one another and recognize and apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.

2f) Model how the development of mathematical understanding within and among mathematical domains intersects with the mathematical practices of problem solving, reasoning, communicating, connecting, and representing.

Standard 3: Content Pedagogy

3a) Apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains.

3b) Analyze and consider research in planning for and leading students in rich mathematical learning experiences.

3c) Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations, and mathematics-specific and instructional technologies in building all students’ conceptual understanding and procedural proficiency.

3d) Provide students with opportunities to communicate about mathematics and make connections among mathematics, other content areas, everyday life, and the workplace.

- 3e) Implement techniques related to student engagement and communication including selecting high quality tasks, guiding mathematical discussions, identifying key mathematical ideas, identifying and addressing student misconceptions, and employing a range of questioning strategies.
- 3f) Plan, select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students.
- 3g) Monitor students' progress, make instructional decisions, and measure students' mathematical understanding and ability using formative and summative assessments.

Standard 6: Professional Knowledge and Skills

- 6b) Engage in continuous and collaborative learning that draws upon research in mathematics education to inform practice; enhance learning opportunities for all students' mathematical knowledge development; involve colleagues, other school professionals, families, and various stakeholders; and advance their development as a reflective practitioner.
- 6c) Utilize resources from professional mathematics education organizations such as print, digital, and virtual resources/collections.

Standard 7: Secondary Mathematics Field Experiences and Clinical Practice

- 7a) Engage in a sequence of planned field experiences and clinical practice prior to a full-time student teaching/internship experience that include observing and participating in both middle and high school mathematics classrooms and working with a diverse range of students individually, in small groups, and in large class settings under the supervision of experienced and highly qualified mathematics teachers in varied settings that reflect cultural, ethnic, linguistic, gender, and learning differences.
- 7c) Develop knowledge, skills, and professional behaviors across both middle and high school settings; examine the nature of mathematics, how mathematics should be taught, and how students learn mathematics; and observe and analyze a range of approaches to mathematics teaching and learning, focusing on tasks, discourse, environment, and assessment.

Rubric for these standards:

Score	Descriptor	Explanation
4	Exceptional	The candidate demonstrates <i>exceptional</i> understanding and/or skill expected of teaching professionals at the initial level of certification. Knowledge conveyed and/or performance demonstrated regarding this standard places the candidate at a level far beyond peers.
3	Proficient	The candidate demonstrates <i>proficient</i> understanding and/or skill expected of teaching professionals at the initial level of certification. Knowledge conveyed and/or performance demonstrated regarding this standard is consistent with that of effective preservice teachers.
2	Basic	The candidate demonstrates <i>basic</i> understanding and/or skill expected of teaching professionals at the initial level of certification. Knowledge conveyed and/or performance demonstrated regarding this standard is consistent with preservice teacher's initial understanding and/or performance in this area.
1	Unacceptable	The candidate does not demonstrate <i>minimal</i> understanding and/or skill expected of teaching professionals at the Class B level of certification. Knowledge conveyed and/or performance demonstrated regarding this standard is unsatisfactory.

You must be at the *basic level* or higher for all standards to pass this course with a C-. However, the *proficient level* should be your goal.

Course Grading Policy

Deductions & Missed Exams or Coursework:

- Being absent or late to class impacts your weekly assignment grade. For each absence after two you course grade will be lower by a full letter grade.
- 10% deduction for each 24-hour period on a late assignment. In other words, if an assignment is 25 hours late, then the grade is lowered by 2 letter grades or 20%
- Sit down exams that are missed students final lesson plan writing assignment will replace any missed exam.

Grade Conversion Scale for the course and for assignments that are “letter grade scored” and/or “numerically scored”

A+	4.33	97.5-100		B+	3.33	87.5-89.99	And so on...	Assignments are assessed based on “criterion-referenced” rubrics and then the criteria scores are “norm-referenced” based on the expected performance. This grading combination is referred to as “augmented norm-referenced” in the literature and provides students two scores: (1) how they did on meeting the objective criteria and (2) how they did in reference the expected level of proficiency.
A	4.00	93-97.49		B	3.00	83-87.49		
A-	3.67	90-92.99		B-	2.67	80-82.99		

Course Assignments Required by Instructors

Lesson Plans (15% & 25% each sequentially, 40% total):

These two assignments represent the writing in the academic discipline. To be an effective teacher, teacher candidates must be able to demonstrate the ability to write coherent, logical, well-structured lesson plans for the discipline of mathematics education. Careful attention must be paid to the way you communicate your understanding of the lesson design and content, as well as how it would be carried out in the classroom setting. Structured questioning and anticipated student responses are critical to the thinking that goes into these assignments. You will be expected to demonstrate increased critical thinking, analysis, and synthesis of the course readings as they apply to your writing.

Students will be asked to develop two lesson plans this term, both of which span two days of instruction or two-hours of class time. The first will be submitted 7-10 days before the Midterm of the semester. It will be assessed using the rubric at the end of the syllabus and assigned a grade. Feedback will be given to students regarding strengths and weaknesses. The final lesson plan should demonstrate improvement attending to the issues/feedback provided during the midterm lesson plan. The final lesson plan will be due either Sunday, Monday, or Tuesday of final exam week to provide ample time to assess and provide feedback.

1. Lessons must be chosen from these specific mathematical subject areas one from a-c, and the other from c-e. No duplications.
 - a. 7th grade mathematics
 - b. 8th grade mathematics
 - c. Algebra 1
 - d. Geometry
 - e. Algebra 2

Standards assessed as part of the lesson plan writing assignment

AL-290-3-3-.13(2)(e)2.

AL-290-3-3-.13(2)(g)1.(i)

AL-290-3-3-.13(2)(g)1.(ii)

AL-290-3-3-.13(2)(g)1.(iii)

AL-290-3-3-.13(2)(g)2.(i)

AL-290-3-3-.13(2)(g)2.(ii)

AL-290-3-3-.13(2)(h)1.

AL-290-3-3-.13(2)(g)2.

AL-290-3-3-.13(2)(c)2.

AL-290-3-3-.13(2)(d)2.

NCTM 2a, 2b, 2c, 2d, 2e, 2f, 3a, 3b, 3c, 3d, 6b, 6c

Optional assignments (or others) for Course Instructors to choose from (60% total):

Course Attendance Policy: *Determined by Professor. Sample from a previous semester.*

Attendance is mandatory! This is your second major course in mathematics education. *Students are expected to attend all classes. One absence will be accommodated for whatever reason (excused or not) through advanced notice to the professor, sudden excusable reason, or a personal reason. Sudden emergencies will be handled on a case-by-case basis beyond the first absence.* Any absences beyond the first will incur a 3% deduction from your final course grade. No exceptions will be made except in long-term case medical emergencies (not to exceed a total of 5 classes). For students who miss 6 classes or more, the highest grade you can receive is a D+ based on deductions and does not meet the pre-requisite for CSE483/583. Thus you must drop the course or receive a D+ or lower.

It is expected you will be ready to begin class at X:XX each day, not walk in the door at X:XX +time. Tardiness is unprofessional and will receive a 1.5% deduction from the final course grade for being tardy beyond once this semester. This attendance policy is based on the philosophy that it is impossible to simulate or create an “out-of-class” professional environment to “make up work” that fashions or emulates the “in class” learning environment for which is a hallmark of this course during discussions and in-class working days. Therefore, when you miss a day (3% of the course), or you are tardy (1.5% deduction) you cannot just “make up” the missed class or erase the unprofessional class disruption.

Weekly assignments / class participation / Attendance. It is extremely important that you attend all class session, are prompt, and are prepared to engage in conversations. Your preparation and participation will guide your learning. Knowledge construction happens socially through engagement in activity as you share your perspective / thinking and listen to others. It is important that you develop your ability to critique others thinking and listen to how your ideas are critiqued. You will be assessed daily based on your contributions and engagement in class activities. You will be assigned out of class activities that will not be graded individually, but count within this portion of your grade. If you do not complete out of class assignments, then you will be less prepared to participate (share your ideas and listen to others).

Four observation reports. During your placement in a secondary classroom you will conduct four written observations with a focus on curriculum (tasks used). The four reports will vary based on course content throughout the semester. For instance, one example will make revisions

to a task the teacher enacted to improve the potential of student learning outcomes. Another report will focus on analyzing the class curriculum.

Discussion Forums. Students will lead and conduct three discussion forums at the start of the course regarding Brahier chapter 4, 5, 6, and 7. These will carry different formats possibly, so be ready to discuss specifics related to the readings, as well as interpretive prompts.

Cognitive levels of mathematical tasks; mathematical flexibility & reversibility. The beginning of the course will consist of learning about the difference between high and low-level cognitive tasks in secondary mathematics. Mathematical flexibility and reversibility are two constructs to improve problem solving and conceptual understanding. These are musts in great teaching and learning classrooms. A number of in-class and out-of-class assignments will exist. In the end, a written examination will be given in class as an individual assessment of your understanding and ability of this important knowledge.

Course Calendar: Determined by professor of course based on student's performances in pre-req courses, CSE 401 and CSE 390, as well as their design of course beyond the two writing assignments.

Example from previous offering:

Meeting	Date	Overview	HW and Readings
1		First day, Syllabus, the course and its objectives	Read and be prepared for Chpt 4 discussion forum
2		Discussion forum, Brahier, Chapter 4	Article Searching, print and have hard copy of AL (or other) 7-12 courses of study. Read and be prepared for Chpt 5 discussion forum
3		Discussion forum, Brahier, Chapter 5	Choose articles for MT and MTMS, Read Part1 of purple book, up to page 28
4		NO CLASS UNIVERSITY HOLIDAY	MLK
5		Purple book discussion and activity	TBD
6		Task level activity, discussion of assessment items	TBD
7		Purple book quiz via TI-Nspire Navigator (new), Flex & Revers	TBD
8		Flexibility & Reversibility in Problem Solving	TBD
9		More on Flexibility, Reversibility	Dr. Gleason to take over class, Dr. Z at AMTE 2-5 to 2-7
10		Hallmark Lesson Plan Start, objectives	Formulate group's lesson plan topic, draft of lesson plan

11		Hallmark Lesson Plan, Common Core, Standards of Mathematical Practice (SMP)	Read and be prepared for Chpt 6 & 7 discussion forum
12		Discussion forum, Brahier, Chapter 6&7	Meet as group, Lesson Plan
13		CC, SMP, & lesson planning	Readings
14		CC, SMP, & lesson planning	Readings
15		Hallmark Lesson Plan Enhancements, assessment	R&SM reading (provided), activity presentation overview, reflection 1 due 3/4
16		Hallmark Lesson Plan Enhancements, assessment	Math problems, Reflection 1 Due 3/4 Hallmark Lesson Plans DUE 11pm
17		TASK LEVEL WRITTEN EXAM	Dr. Gleason to take over class, Dr. Z at T ³ 3-5 to 3-7
18		Fractions, Error Analysis, Triangles	Reflection 2 reminder, 3/20
19		Mock Lesson on inquiry	R&SM, work on inquiry part lessons
20		Middle School math, factor game, teacher analysis	Read Brahier ch 8-9
21		Cognitive Levels of Mathematical Tasks, Flexibility, Reversibility	Reflection 2 due March 20 th
--		SPRING BREAK	TBD, begin final exam lesson project
--		SPRING BREAK	TBD, begin final exam lesson project
22		Cognitive Levels of Mathematical Tasks, Flexibility, Reversibility	TBD, Cont Final Project, Clinical experience summary Due 4/19.
23		Cognitive Levels of Mathematical Tasks, Flexibility, Reversibility	TBD, Cont Final Project, Clinical experience summary Due 4/19.
24		Clinical Release Week	NCTM – New Orleans
25		Clinical Release Week	NCTM – New Orleans
26		Hallmark Lesson Plan, Common Core, Standards of Mathematical Practice (SMP)	TBD, Cont Final Project, Clinical experience summary Due 4/19.
27		Hallmark Lesson Plan, Common Core, Standards of Mathematical Practice (SMP)	TBD, Cont Final Project, Clinical experience summary Due 4/19.
28		Clinical experience summaries, NCTM, CCSSM	Final Exam Lesson Plan Project due April 27th, 11pm
29		Clinical experience summaries, NCTM, CCSSM	Final Exam Lesson Plan Project due April 27th, 11pm
FINAL		FINAL EXAMS WEEK, PROFESSIONAL GROWTH MEETINGS	

Other University Policies:

Statement on Academic Misconduct

<http://provost.ua.edu/uploads/3/9/7/6/39760652/academicmisconductpolicy.pdf>

Any submission of academic work designed to meet the requirements of a particular credit-bearing course is assumed to be work completed for that course and only that course; the same material submission, or material that is substantially similar, may not be used to meet the requirements of another course. Any violation of this rule may result in a referral to the Associate Dean for Student Services and Certification for disciplinary action.

Statement on Disability Accommodations <http://ods.ua.edu/students/>

Statement on Religious Observances <http://provost.ua.edu/religious-observances.html>

Severe Weather Protocol <https://ready.ua.edu/severe-weather-guidelines/>

UAct Statement <https://www.ua.edu/campuslife/uact/>

****Social Justice and Equality:**

The University of Alabama is committed to social justice and equality. I concur with that commitment and expect to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate based on race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me privately and make appropriate arrangements with the UA ADA office.

While the University strives to accommodate the needs of people with disabilities as fully as possible, reasonable accommodations do not include measures which fundamentally alter the University's programs and services or which place an undue administrative or financial burden on the University. The University is committed to identifying and removing potential accessibility barriers in its facilities and on its grounds for employees, students, and campus visitors with mobility impairments. To report an ADA accessibility problem on campus, you are encouraged to call the ADA Hotline at 205-348-5882 and leave a message or e-mail facilities@fa.ua.edu.

Note: The instructor will make every effort to follow the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as the need arises. In such instances, the instructor will notify students in class and/or via email and will endeavor to provide reasonable time for students to adjust to any changes.

Element of Assessment for Lesson Plan Writing Assignments	Unsatisfactory (0 Points)	Minimum Satisfactory (4 pts)	More than Satisfactory (7 pts)	Superb or Exemplary (10 pts)
<p>Standards Appropriateness Candidate demonstrates knowledge/ability of: curriculum standards appropriate for the lesson and relationship to student learning 1/15 (6%) NCTM-2012.ELEM.2e</p>	<p>Does not relate plans and activities to state and national standards.</p>	<p>Relates plans and activities to isolated state and national standards on lesson plans.</p>	<p>Relates plans and activities to multiple state and national standards on lesson plans demonstrating that more than one standard may be met by a given activity.</p>	<p>Relates plans and activities to state and national standards on lesson plans and ensures that all standards are addressed on a regular basis.</p>
<p>Standards Appropriateness Candidate demonstrates knowledge/ability of: the interconnectedness of math concepts by selecting two standards from different content domains whereas the lesson plan demonstrates connections 1/15 (6%) NCTM-2012.ELEM.2f</p>	<p>Does not model reasoning and mathematical communication.</p>	<p>Displays limited connections to mathematical reasoning and connections to other mathematics concepts/procedures.</p>	<p>Displays detailed connections to mathematical reasoning and connections to other mathematics concepts/procedures.</p>	<p>Displays ongoing and continuous connections to mathematical reasoning and connections to other mathematics concepts/procedures.</p>
<p>Standards Appropriateness: Candidate demonstrates knowledge/ability of: the intersection of content domains through the five NCTM process standards 1/15 (6%) NCTM-2012.ELEM.3a</p>	<p>Mathematical activities are disjoint, do not build on each other, and do not clearly connect to the goals of the lesson.</p>	<p>Mathematical activities show some connections that build on each other. Connections are not clear to the students.</p>	<p>Mathematical activities provide connections that build on each other to develop an understanding of mathematical concepts. Connections are somewhat clear to students.</p>	<p>Mathematical activities provide clear connections that build on each other to develop a deep understanding of mathematical concepts. Connections and concepts are clear to students.</p>

Objectives & Assessability: Candidate uses accurate and precise language in writing of the lesson plan objectives, as well as the ability presenting objectives that can be assessed

1/15 (6%)

NCTM-2012.ELEM.2d

Frequent oral and written errors are presented to students. Little to no expectation for correct mathematical usage by students.

Minimal oral and written errors are presented to students. There are inconsistent expectations for students' use of mathematical terminology and representation.

All mathematical terminology and representations (oral and written) are presented clearly and accurately. There are inconsistent expectations for students' use of mathematical terminology and representation.

All mathematical terminology and representations (oral and written) are presented clearly and accurately. Students are held to a high standard for their use of mathematical terminology and representations.

Facilitating Questioning based on Tasks: Candidate demonstrates the ability to choose mathematical tasks that have guiding questions that demonstrate in the lesson plan the candidate has: Reasoned abstractly, reflectively, and quantitatively with arguments, proofs, or represented math models

1/15 (6%)

NCTM-2012.ELEM.2b

Mathematical tasks presented only demonstrate candidates' memorization and procedural knowledge, lacking equity in providing students opportunity to learn mathematics.

Mathematical tasks are present & demonstrate candidates' developing conceptual knowledge as well as procedural knowledge and may challenge some students equitably.

Mathematical tasks are designed well & demonstrate candidates' conceptual knowledge as well as procedural knowledge and will challenge some students equitably.

Mathematical tasks are designed extremely well & demonstrate candidates' conceptual knowledge as well as procedural knowledge and challenge all students equitably.

Facilitating Questioning based on Tasks:
Candidate demonstrates the ability to choose mathematical tasks that have guiding questions that demonstrate in the lesson plan the candidate has:
Presented real-world math through formulating, representations, analyzing, & math modeling
1/15 (6%)
NCTM-2012.ELEM.2c

Candidate demonstrates mathematical tasks present no realistic tasks and focuses either solely on memorization and/or procedures with connections.

Candidate demonstrates mathematical tasks present a shade of realistic tasks with good setup for representations with procedures with connections, but can easily fall to procedures without connections.

Candidate demonstrates mathematical tasks present some realistic tasks with very good setup for representations along with procedures with connections.

Candidate demonstrates mathematical tasks present strong realistic context with excellent setup for representations along with doing mathematics (could be procedures with connections).

Student Engagement, Content Inquiry:
Candidate demonstrates: they have used and/or considered professional resources in their planning for engaging students
1/15 (6%)
NCTM-2012.ELEM.3b

Demonstrates consistently poor planning and implementation skills.

Occasionally uses materials and resources for teaching mathematics.

Variety of materials and resources are used. Materials and resources are from multiple written and digital sources.

Consistently uses a variety of materials and resources in lesson. Materials and resources are from multiple written and digital sources. Resources are used to challenge students' mathematical abilities.

Student Engagement, Content Inquiry:
Candidate demonstrates: they have considered research in planning that will give students rich learning experiences
1/15 (6%)
NCTM-2012.ELEM.6c

Did not seek opportunities for professional development and resists suggestions by faculty/supervisors.

Pursued limited opportunities to use concepts and activities found in mathematics education research in practice.

Sought opportunities to use concepts and activities found in mathematics education research in practice.

Actively and enthusiastically pursues professional growth through using concepts and activities found in mathematics education research in practice.

Technology Integration: Candidate utilizes instructional technologies that differentiate for learners that will build student' conceptual understanding & procedural fluency

1/15 (6%)

NCTM-2012.ELEM.3c

Fails uses technology to support the learning and understanding of mathematical concepts & procedures.

Minimally uses, possibly effective, available and appropriate technology to support the learning and understanding of mathematical concepts & procedures.

Somewhat effectively uses available and appropriate technology to support the learning and understanding of mathematical concepts & procedures.

Integrates available and appropriate technology to achieve goals and challenge students to develop deeper understandings of mathematical concepts & procedures.

Mathematical Flexibility, Reversibility (Star, Krutetskii): Candidate plans lesson and shows their own ability in those lesson plans that, uses problem solving to develop understanding in a wide-variety of ways, including multiple strategies (flexibility) to solve real problems, including using reversibility (when appropriate) to formulate and test

1/15 (6%)

NCTM-2012.ELEM.2a

Does not display effective problem solving strategies.

Displays simple problem solving strategies with some connections to the use of multiple representations. Minimally uses flexibility and/or reversibility in problem solving.

Displays detailed problem-solving strategies and provides good connections to the use of multiple representations through flexibility and reversibility.

Displays exceptional degree of skill and knowledge in using problem solving strategies with excellent connections with the use of multiple representations through flexibility and reversibility.

Cognitive Task Levels Accuracy as Indicated (Stein et al): Candidate's task choices are of high quality, providing students with: the opportunity to discuss the mathematics and make connections, including to real life and work

1/15 (6%)

NCTM-2012.ELEM.3d

Limited to no questions are asked of students.

Some variety of questions are posed to students. Many of the questions are of lower cognitive demand and of the information type than ones that would fully generate productive discussion.

Several different types of questions of various cognitive demands are posed to students. Limited emphasis is on student produced/guided questions.

Many different questioning strategies are evident and teacher posed questions are of a variety of nature for which students will engage in cognitive demanding discussions about mathematics in context.

Cognitive Task Levels Accuracy as Indicated (Stein et al): Candidate's task choices are of high quality, providing students with: the opportunity to be engaged in high quality tasks with guiding discussions planned on mathematical ideas, while the candidate has prepared for addressing misconceptions and questioning
1/15 (6%)
NCTM-2012.ELEM.3e

Mathematical tasks presented only develop students' memorization and procedural knowledge without productive discourse.

Mathematical tasks are designed to develop students' conceptual knowledge as well as procedural knowledge, productive discourse may ensue but is not strongly evident.

Mathematical tasks are designed to develop students' conceptual knowledge as well as procedural knowledge, paying particular attention to key mathematical ideas, concepts, and student misconceptions.

Mathematical tasks are designed to develop students' conceptual knowledge as well as procedural knowledge, with strong evidence of attention to key mathematical ideas, concepts, and student misconceptions.

Concept Development (Bruner): Candidate demonstrates presented structure or regularity in patterns by demonstrating how concept development is central to their lesson plan, using Bruner's stages of development (concrete, pictorial, abstract)
1/15 (6%)
NCTM-2012.ELEM.2b

Displays content knowledge, but is unable to provide alternative explanations or other representations for any or most mathematics concepts. No communication of content knowledge.

Displays acceptable content knowledge and are able to provide some explanations or other representations for the mathematics concepts. Communicates content knowledge minimally acceptable.

Displays very good content knowledge and are able to provide alternative explanations or other representations for the mathematics concepts. Communicates content knowledge well.

Displays strong content knowledge and are able to provide alternative explanations or other representations for the mathematics concepts covered. Communicates content knowledge articulately.

Assessment Plans Formative, only feedback: Candidates demonstrate: a beginning knowledge of and ability to: plan, select, implement, interpret, and use assessments to inform instruction with reflections on the mathematical proficiencies they intend for all students in the lesson This line of the rubric will not be counted in CSE 406 grade, but will begin to be scored in the methods block
1/15 (6%)
NCTM-2012.ELEM.3f

Uses a very limited number and type (or none) of assessments, primarily traditional assessments of procedural mathematics knowledge. No reflection.

Attempts to use authentic assessments and/or traditional assessments to successfully assess both conceptual and procedural knowledge. May or may not be tied to motivation. Candidate reflection is developing.

Uses a variety of assessment instruments and methods to assess skill development as well as both conceptual and procedural knowledge. Assessments may or may not motivate. Candidate assessment reflection is evident.

Meets standard for proficient and incorporates student self-assessment with teacher assessments and makes use of such assessments to motivate and direct student learning. Candidate provides rich reflection on assessment showing signs of deep thought.

Professional Knowledge & Skills: Candidates engage in strong collaborative situations: during the midterm group lesson plan by: Using mathematics education research resources and practitioner materials for which you and your peers, cooperating teacher and other school persons, engaged in scholarly discussions and reflection during the process of finishing the group lesson plan
1/15 (6%)
NCTM-2012.ELEM.6b

Candidate provided no evidence of collaboration and continued development work on the lesson plan. Peers reported lack of dedication or involvement.

Candidate provided some evidence of collaboration and continued development work on the lesson plan. Peers reported some dedication or involvement.

Candidate provided good evidence of collaboration and continued development work on the lesson plan. Peers reported good dedication or involvement.

Candidate provided excellent evidence of collaboration and continued development work on the lesson plan. Peers reported excellent dedication or involvement.