TEACHER EDUCATION DEPARTMENT
COLLEGE OF EDUCATION UNIVERSITY OF TEXAS AT EL PASO

"The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires." ~ William Arthur Ward, writer

MSED4310
SPRING 2024
ONLINE
Teaching Mathematics in Middle School

This syllabus is subject to change as needed. Any changes to the syllabus will be announced via email or posted on Blackboard.

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Course Philosophy and Description:

For teachers of mathematics to be truly effective involves bringing together four basic components:

A. An appreciation (growth mindset) of the discipline of mathematics itself.
B. An understanding of how students learn and construct ideas in active, inquiry-based learning.
C. An ability to design and select challenging, open mathematical tasks, and create problem-solving environments.
D. The ability to integrate appropriate, mathematically meaningful assessment within the teaching process.

One of the main components of teaching is helping students to "discover and construct" mathematics for themselves by creating successful inquiry-based, active learning environments, a friendly atmosphere, and an "open mind" approach. The goal of teaching mathematics is for students to develop understandings, not just for students to find the correct answer, but to find answers using the "best" methods. Hence, a teacher needs to promote students' thinking, to encourage searching for different methods leading to mathematical understanding (including through failure). Discovery learning is enhanced with error analysis and trial and error. The role of the teacher is to integrate novelty to engage students by posing challenging problems and encourage students to invent new ways of approaching the problem without fear of making a mistake.

This course has been constructed to help you in critically examining the philosophies, theories, research, pedagogical techniques, and materials associated with effective learning and teaching.

Course Goals and Objectives:

We will address factors that support meaningful growth and progress on an inner journey towards personal transformation. Our classroom community will develop a process that will allow us to explore "who we are, what assumptions we hold as true, how and what we teach, how we organize ourselves, and what barriers prevent us from creating authentic learning environments" (Crowell, Caine & Caine, 1998).

Students enrolled in this course will explore the methods of effective teaching to provide opportunities for successful learning. Emphasis is placed on the equity principle (learning for all) and development of conceptual

understanding of topics, as well as project/problem-based learning. Specifically, students will become more effective in the following areas by:

A. Exploring innovative learning theories and techniques of teaching and learning including problem-based and inquiry, open-ended approach.
B. Studying how to apply general and content methods of teaching and learning in diverse classroom settings.
C. Helping the students to create successful learning environment in teaching and learning.
D. Writing and analyzing lesson plans that support the learning cycle.
E. Unpacking state standards for specific content areas and developing practical and engaging use of state standards/TEKS, NCTM Standards, and Common Core State Standards (CCSS)
F. Demonstrating use of educational technology within lesson plan development and mini-teaching experiences.
G. Demonstrating understanding of critical reading of texts and web sites through writing and discussion.
H. Demonstrating reflection about teaching and learning through writing and discussion.
I. Writing and discussion to demonstrate an informed perspective about curriculum and related educational issues.
J. Addressing the domain and competencies that will prepare you for state certification content exam [TeXes].

Course Structure:

Classes for this course are online (UTEP Blackboard). Classes will be a combination of videos, readings, Blackboard discussion boards, individual/group course assignments and tasks, and project development. It is expected that students will participate in all activities and components of the course.

Materials/resources we will be using:

Required readings/videos will be scanned and placed on blackboard, or you will be provided with appropriate web links.

Additional Resources:

A. Texas Essential Knowledge and Skills (TEKS) for all content areas and grade levels.
https://tea.texas.gov/academics/curriculum-standards/teks/texas-essential-knowledge-and-skills
B. Common Core Standards
https://study.com/teach/common-core-math-standards.html
C. These websites provide a wide selection of virtual manipulatives for teaching mathematics:
http://nlvm.usu.edu/en/nav/vlibrary.html
D. Book "How Students Learn: Mathematics in the Classroom".
You can read it online at http://www.nap.edu/catalog.php?record_id=11101

Software Requirements:

A. Adobe® Reader® is free software that allows everyone from business professionals to home users to view easily and reliably, print, and search PDF files using a variety of platforms and devices.
C. Microsoft Office® - This product is available at the UTEP Bookstore.
D. E-mail tool with file attachment capability. Please use your UTEP e-mail account.

Weekly Assignments:

You will be asked to complete weekly assignments. These assignments will be diverse and may include assigned readings, solving or analyzing mathematical tasks, watching a video, participating in discussion boards, analyzing student work, or preparing activities. Completing these assignments is a critical part of your coursework.

Final Project (100 Points):

- Based on the foundations of Project-Based Learning, the 5-E Model of Lesson Planning and Unit Planning, you will be developing and creating a Lesson Plan for Texas Essential Knowledge and Skills Mathematics (TEKS) https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=19&pt=2&ch=111 utilizing the pedagogical approach of integrating hands-on student experiences and active learning. The lesson plan should be an original you developed.

- The lesson plan must include Tools, Tasks and Strategies for each 5E component.

- Materials/Tools – actual items or links – must be submitted with the lesson plan.

- A demonstration video must be submitted with the lesson plan. You may teach the lesson or describe each of the components.

Final Exam (Discretion of the instructor): *A final exam is not planned for this course. However, if it is evident that students are not completing the readings or viewing the video, a final exam will be integrated in substitution for the final project. Advance notice will be given to students of implementation of a final exam.*

Video Observation Hours:

As you view an assigned video, you will complete the video observation log affirming the time spent viewing the videos. This document will be submitted at the end of the semester, reviewed, and submitted to the Teacher Education Department.

Guiding Principles for this Course: T-TESS Domains

The T-TESS Rubric includes 4 Domains and 16 Dimensions. T-TESS domain and dimension rubrics include

specific descriptors of practices and 5 performance levels; Distinguished, Accomplished, Proficient, Developing, and Improvement Needed.

Activities	Differentiation		School Community Involvement
	Monitor and adjust		

Planning	**Instruction**	**Learning Environment**	**Professional Practices and Responsibilities**
Standards and Alignment	Achieving Expectations	Classroom Environment, Routines and Procedures	Professional Demeanor and Ethics
Data and Assessment	Content Knowledge and Expertise	Managing Student Behavior	Goal Setting
Knowledge of Students	Communication	Classroom Culture	Professional Development

Student Learning Outcomes:

The course's learning outcomes will require the student to acquire throughout the semester knowledge and skills and build upon them. The following table provides a list of the most relevant student learning outcomes for the course. The following outcomes are aligned with SBEC-approved Texas educator standards. Please, see the full standard* at https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=19&pt=2&ch=149&rl=1001

Table 1. Student learning outcomes and assessment

Student Learning Outcomes		**Formative & Summative Assessments**
TeXes 7-12	***By the end of the course, the student will be able to:***	***To evaluate these outcomes, the faculty member will use the following assessment procedures:***
V, VI	Develop an understanding of current issues, practices and directions in mathematics curriculum and the ability to inquire into these.	a. Online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections
V, VI	Develop knowledge and skills in educational research	a. Online interactive, Socratic discussions b. Lesson Plan Development c. Quizzes and Exams c. Written Reflections
V, VI	Identify and Analyze topics of importance in current mathematics education	a. Online interactive, Socratic discussions b. Electronic Databases Literature Searches c. Quizzes and Exams c. Written Reflections
ALL	Deepen their commitment to their pupils' learning of mathematics	a. Pre/Post Test b. Pre/Post Survey c. Comprehensive Exams d. Written Reflections
ALL	Increase their confidence to teach mathematics	a. Micro-Teaching Exercise b. Pre/Post Survey c. Written Reflections d. Self and Peer Feedback and Ratings
V, VI	Improve their ability to manage and assess their pupils' mathematics learning. Discover innovative methods of instruction to increase effectiveness and pupils' engagement, learning, and thinking.	a. Online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections d. Micro-Teaching Exercise
ALL	Improve their capacity to think reflectively and creatively about their teaching of mathematics	a. Online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections d. Micro-Teaching Exercise
ALL	Increase their capacity to become an agent of change in the field of mathematics education through effective teaching and communication.	a. Online interactive, Socratic discussions b. Lesson Plan Development c. Electronic Databases Literature Searches
		c. Written Reflections d. Pre/Post Survey
ALL	Develop knowledge and strategies to design curriculum at classroom and school levels.	a. Online interactive, Socratic discussions b. Lesson Plan Development c. Electronic Databases Literature Searches c. Written Reflections

POLICIES:

A. Grading Scale:

Excellent	Above Average	Average	Below Average	Failing
A = 90 – 100%	B = 80 – 89%	C = 70 – 79%	D = 60 – 69%	F = 59% and below

B. Submission of Assignments:

Assignments are to be submitted through Blackboard Assignment on the date and time indicated by

assignment. **Late assignment submissions will not be accepted.**

C. Standards of Academic Integrity:

Students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are not attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP) and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grades on the work in question, to failing grades in the course, to suspension or dismissal, among others.

D. Students with Disabilities:

If you have or believe you have a disability, you may wish to self-identify. You can do so by providing documentation to the Office of disabled Student Services located in Union E Room 203. Students who have been designated as disabled must reactivate their standing with the Office of Disabled Student Services on a yearly basis. Failure to report to this office will place a student on the inactive list and nullify benefits received. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of Disabled Student Services. You may call 747-5148 for general information about the Americans with Disabilities Act (ADA).

E. Equal Educational Opportunity:

To create equal educational opportunities in the class, all students are expected to demonstrate respect for the diverse voices and individual differences in the class. Particularly, no person shall be excluded from participation in, denied benefits of, or be subject to discrimination under any program or activity sponsored or conducted by the University of Texas at El Paso based on race, color, national origin, religion, sex, age, veteran status, disability, or sexual orientation. Any member of the University community who engages in discrimination or other conduct in violation of university policy is subject to the full range of disciplinary action, up to and including separation from the University. Complaints regarding discrimination should be reported to the University's Equal Opportunity Office. Inquiries regarding applicable policies should be addressed to the University's Equal Opportunity Office, Kelly Hall, 3rd Floor, 915.747.5662 or eoaa@utep.edu<mailto:eoaa@utep.edu> .

F. Inclusiveness and equity:

Learning happens only when we feel respected human being. My top priority in our course is to cultivate relationships of trust and respect and a sense that we see each other as whole, complex human beings. That you experience this in our course is important for the sake of your learning in our course and for the sake of your future students' learning, so that you feel able to cultivate such relationships with them. To that end, I

want you to know that all of you is welcome in our learning space—all the parts of you as a person are welcome in our discussions, our activities, our assignments, and in our assessments. We are all complex people with a variety of perspectives, experiences, challenges, assets, and resources—our gender identities, our sexual orientations, our religions, our races, our ethnicities, our economic statuses, our immigration statuses, our parenthoods, our veteran statuses, our ages, our languages, our abilities, and disabilities. All the parts of you are welcome in our learning community to the extent that you feel comfortable bringing them in. I strive to show respect for the variety and wholeness in each of you, and I expect that each of you shows respect for each other as well. If you feel marginalized in our class, and you feel comfortable discussing it, I would like to know so that I can support you, protect you, and make changes that feel more inclusive and equitable. You can also talk with our Department Chair and/or you can report a complaint of discrimination to the University's Equal Opportunity Office, Kelly Hall, Third Floor, 915-747-5662 or eoaa@utep.edu .

G. Professionalism:

Consistent commitment to being successful in the course as well as, collegiality, supportive critique, and professionalism will be expected.

Course expectations:

- Attend virtual meetings when you are scheduled to attend meetings (virtual meetings with peers, instructor, etc.)
- Be prepared to raise, share, discuss and attempt to solve any individual or collective problems you may have with your colleagues and/or your instructor in constructive ways that allows us all to maintain our dignity and continue to function effectively as a community.
- Demonstrate an understanding that while we can, and will, disagree, we need to do so within a community of respect; and
- Provide your classmates with supportive critique and constructive feedback.

"Talent is a dreadfully cheap commodity, cheaper than table salt. What separates the talented individual from the successful one is a lot of hard work and study." ~Stephen King.

Tentative Online Course Outline: MSED4310 SPRING 2024
NOTE: All topics, assignments, and due dates are subject to change at the instructor's discretion.

Week/Day	Learning Agenda/Assignments	Assignment Due Date
Module 1	**Topic Introductions:** *Initial perceptions about students are frequently not accurate based on assumptions we make from available information before we get to know our students. This introductory activity exemplifies how making assumptions can lead to misinformation and inaccurate judgements.* (1) Prepare a 2-3 paragraph introducing yourself (6 points) (2) Respond to the following prompts: a. Why are you pursuing a teaching career? b. What is your basic teaching philosophy? c. What makes you a good candidate to become an educator? d. What else do we need to know about you as a person? (3) Email to rllynch@utep.edu **Readings and Evidence of Understanding**: (1) Read *Chapters 1 in How Students Learn Mathematics* http://www.nap.edu/catalog.php?record_id=11101 (2) Watch Technological, Pedagogical and Content Knowledge (TPaCK) https://youtu.be/FagVSQlZELY (3) Be able to respond to the following question prompts for Module 2 Assignments: a. What is "doing" Math? b. What is Constructivism? c. What are some approaches for teaching in an inquiry-based classroom?	1/23/24 11:59 pm
Module 2	**Topics:** Teaching and Active Learning **Videos and Links to review (on Blackboard):** (1) Building on Student Ideas: Border Problem Part I (Linked on Blackboard) (2) Fish is Fish (https://www.youtube.com/watch?v=cvp5FoINnnM) (3) NCTM process standards (http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/Process) (4) Texas Essential Knowledge & Skills (TEKS) Mathematics Standards (https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=2&ch=111&sch=B&rl=Y) **Readings and Evidence of Understanding:**	1/30/24 11:59 pm

	Based in your readings, the videos and review of websites **write a three (3-4) paragraph reflection of the pedagogical approaches to active learning used and responding to question prompts below** (8 points - Submit on Blackboard Assignments)**. Include 3-4 in-text quotes/citations total from assigned readings/videos which make you think about components of *Teaching and Active Learning*. Make sure to cite "using APA" (Author last name, year, p. xx). Academic work must be written with appropriate citations utilizing APA Style (7th edition).** **https://owl.purdue.edu/owl/research_and_citation/apa_style/index.html** **Guiding Questions/Prompts:** 1. What is "doing" Math? 2. What is Constructivism? 3. What are some approaches for teaching in an inquiry-based classroom? 4. From the video, Border Problem I, what are the six different ways (other than counting) to visualize how to find the number of the squares in the border? What does geometry have to do with it? Why is verbal description important? 5. The Border Problem I lesson from visualizations to symbolic expressions. How did this contribute to student understanding and learning? ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 3	**Topics:** Misconceptions and Effective Questioning **Videos and Links to review (on Blackboard):** (1) View "Mistakes" https://www.youcubed.org/resources/mistakes-video/ (2) View and analyze The Border Problem Part II (Link on Blackboard) (3) Read *Chapters* 6 *in How Students Learn Mathematics* (http://www.nap.edu/catalog.php?record_id=11101) **Readings and Evidence of Understanding:** Based in your readings, the videos and review of websites **write a three (3-4) paragraph reflection of the pedagogical approaches to active learning used and responding to question prompts below** (8 points - Submit on Blackboard Assignments)**. Include 3-4 in-text quotes/citations total from assigned readings/videos which make you think about components of *Misconceptions and Effective Questioning*. Make sure to cite "using APA" (Author last name, year, p. xx). Academic work must be written with appropriate citations utilizing APA Style (7th edition).** **https://owl.purdue.edu/owl/research_and_citation/apa_style/index.html** **Guiding Questions/Prompts:**	2/6/24 11:59 pm

	1. Why didn't Cathy begin the lesson with an ordered table of values? What was the benefit to student understanding and learning? 2. Cathy says, "I discovered that misconceptions about variables are resistant to change and often exacerbated by instruction and instructional materials." Discuss some of the most common misconceptions students have about variables and what are some approaches to dispel those misconceptions. 3. You have viewed videos about "number talks". How would you integrate this strategy and the process of justification into your teaching specifically. 4. What is the importance of planning when teaching in an active learning classroom? ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 4	**Topics:** Mathematical Reasoning, Sense-making, Pedagogical Moves Role of Skeptics **Videos and Links to review (on Blackboard):** (1) View video case - Defending Reasonableness: Division of Fractions (Link on Blackboard) (2) Read *Chapters 5 and 7 in How Students Learn Mathematics* (http://www.nap.edu/catalog.php?record_id=11101) (3) Watch first 3 minutes of Tour of Mathematical Connections (Boaler) (https://youtu.be/7FE_8wGgw_M) **Readings and Evidence of Understanding:** Based in your readings, the videos and review of websites **write a three (3-4) paragraph reflection of the pedagogical approaches to active learning used and responding to question prompts below** (8 points - Submit on Blackboard Assignments)**. Include 3-4 in-text quotes/citations total from assigned readings/videos which make you think about components of *Mathematical Reasoning, Sense-making, Pedagogical Moves, Role of Skeptics*. Make sure to cite "using APA" (Author last name, year, p. xx). Academic work must be written with appropriate citations utilizing APA Style (7th edition).** **https://owl.purdue.edu/owl/research_and_citation/apa_style/index.html** **Guiding Questions/Prompts:** 1. "Division of fractions, in particular, is one of the most rote procedures ("Ours is not to reason why – just invert and multiply!")". Students confuse the series of steps for correct calculations. How and why is it important for student understanding and learning for students to consider the 'reasonableness' of their answers? How do students come to understand why invert and multiply makes sense?	2/13/24 11:59 pm

	2. Explain the process of using benchmarks to estimate sums and differences. 3. How does prior knowledge of fractional scale factors provide a context for multiplication of fractions, which is foundational knowledge for division of fractions? 4. In what ways can you develop a classroom environment where mistakes or wrong answers are seen as useful to understanding and learning? ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 5	**Topics:** Cooperative/Collaborative/Inquiry-Based/Project-Problem-Based Learning, Establish Relevance **Videos and Links to review (on Blackboard):** (1) View video case - Defending Reasonableness: Notion of Proof Part I (Link on Blackboard) (2) View Inquiry-based Learning (Boaler) (https://youtu.be/Ien-86bXCrI) **Readings and Evidence of Understanding:** Module 5 and 6 Reflection is combined. ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	2/27/24 11:59 pm
Module 6	**Topics**: "Sticky Learning": Making Connections **Videos and Links to review (on Blackboard):** (1) View video case - Defending Reasonableness: Notion of Proof Part II (Link on Blackboard) (2) Read *7 Real-World Math Strategies* https://www.edutopia.org/article/7-real-world-math-strategies (3) Read *Making Mathematical Connections https://www.nctm.org/News-and-Calendar/Messages-from-the-President/Archive/Linda-M_-Gojak/Making-Mathematical-Connections/* **Readings and Evidence of Understanding:** Based in your readings, the videos and review of websites (from Module 5 and 6) **write a three (3-4) paragraph reflection of the pedagogical approaches to active learning used and responding to question prompts below** (8 points -Submit on Blackboard Assignments)**. Include 3-4 in-text quotes/citations total from assigned readings/videos which make you think about components of *Cooperative/Collaborative/Inquiry-Based/Project-Problem-Based Learning, Establish Relevance and "Sticky Learning": Making Connections*. Make sure to cite "using APA" (Author last name, year, p. xx). Academic work must be written with**	2/27/24 11:59 pm

	appropriate citations utilizing APA Style (7th edition). **https://owl.purdue.edu/owl/research_and_citation/apa_style/index.html** **Guiding Questions/Prompts:** 1. "… students do not learn simply by being told, they need to actively connect new knowledge with their previous conceptions and beliefs (Bransford, Brown, and Cocking 2000)". Unpack the statement addressing the following concepts: Emphasis to important ideas, reinforcing classroom norms, and piquing students' interests. 2. How did Cathy emphasize the important ideas in the lesson video (Notion of Proof)? Why do you think she chose to use the strategy(ies) she used? Are there other strategies she could have used? 3. How did Cathy reinforce classroom norms in the lesson video? Why do you think she chose to use the strategy(ies) she used? 4. How did Cathy pique student interests in the lesson video? Why do you think she chose to use the strategy(ies) she used? 5. How are connections made throughout the lesson? ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 7	**Topics:** Models, Background Knowledge, Real World Connections, Differentiation, Level Up/Down **Videos and Links to review (on Blackboard):** (1) View video case - Volume of Prisms & Cylinders (Link on Blackboard) (2) Read *Chapters 8 in How Students Learn Mathematics* (http://www.nap.edu/catalog.php?record_id=11101) (3) Using technology to teach mathematics: **Explore and Review** three (3) or more of the following applications: a) GeoGebra (https://www.geogebra.org/) b) "PBS Math Club" (https://nm.pbslearningmedia.org/collection/pbs-math-club/#.WmY9epM-fJM) c) "NCTM Illuminations" (https://illuminations.nctm.org/Search.aspx?view=search&gr=6-8) d) "Get The Math" https://www.thirteen.org/get-the-math/ e) "Making a GeoGebra app" https://www.geogebra.org/a/14 **Readings and Evidence of Understanding:** (3) Complete and submit **review sheet (on Blackboard)** of application/sites (3 points) ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	3/5/24 11:59 pm
Module 8	**Topics:** Math Talk/Engaging Students in Math Communication **Videos and Links to review (on Blackboard):** (1) View video case - Surface Area (Link on Blackboard)	3/12/24 11:59 pm

	(2) View *A Simple Strategy to Get Students Talking About Math* https://youtu.be/RiMnYYFq88U (3) Review *Chapters 5 in How Students Learn Mathematics* (4) Read *Getting Started with Effective Math Talk in the Classroom* https://minds-in-bloom.com/getting-started-with-effective-ma/ **Readings and Evidence of Understanding:** Based in your readings, the videos and review of websites (from Module 5 and 6) **write a three (3-4) paragraph reflection of the pedagogical approaches to active learning used and responding to question prompts below** (8 points -Submit on Blackboard Assignments)**. Include 3-4 in-text quotes/citations total from assigned readings/videos which make you think about components of *Math Talk/Engaging Students in Math Communication*. Make sure to cite "using APA" (Author last name, year, p. xx). Academic work must be written with appropriate citations utilizing APA Style (7th edition).** **https://owl.purdue.edu/owl/research_and_citation/apa_style/index.html** **Guiding Questions/Prompts:** 1. Flat patterns or "nets" are frequently used when teaching surface area. By "saying as little as you can without causing chaos" how did Cathy guide the students from model to formula? What was the benefit to learning and understanding of using this approach? Provide video evidence to support your response. 2. "One of the most seductive traps a teacher can fall into is to assume that once a correct answer has been publicly stated (either by student or by the teacher), it has become common knowledge." "Obvious is the most dangerous word in mathematics teaching." How can teachers avoid falling into this trap and what pedagogical moves would you use to facilitate whole class understanding and knowledge creation? What strategies promote active versus passive learning practices? 4. Within the lesson, identify academic vocabulary that was introduced or used in the video. Why do teachers sometimes move from 'adult speak' to 'student speak'? (For example, referring to a rectangle as a box). What are the hazards of not using correct terminology? What are strategies to integrate academic vocabulary building into a lesson? Are the strategies effective or ineffective in contributing to student learning and knowledge acquisition? ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 9	**Topic:** Lesson Planning **Videos and Links to review (on Blackboard):** (1) Review The 5E Instructional Model https://youtu.be/bDPh3vxKdfc	3/26/24 11:59 pm

	(2) 5E Quick Review https://youtu.be/zJopF8p-VDs (3) Read the article: *What Is the 5 E Instructional Model?* https://www.thoughtco.com/5-e-instructional-model-4628150 (3) Read the article: *How to Use the 5Es in Remote Math Instruction* https://www.edutopia.org/article/how-use-5es-remote-math-instruction **Readings and Evidence of Understanding:** (1) Using the knowledge you have gained from the videos and readings, draft a mathematics lesson plan using the provided 5-E format (on Blackboard). (2) Be sure to identify the TEKS/Student Expectation you are teaching (https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=2&ch=111&sch=B&rl=Y (3) Be sure to identify for each of the 5E Components, Tools, Tasks & Strategies that you will use. (4) Consider how you will make this an active learning lesson. (5) Do not submit a lesson plan that you did not develop!!! This should be original work!! (6) Submit on Blackboard (25 points) ** You may need to download video and open with "Power Media Player" or "Video" or another option than photo viewer*	
Module 10	**Topic:** Lesson Plan Tools/Materials **Videos and Links to review (on Blackboard):** Some Resources: (1) *Graphic Organizers in Math* https://www.thoughtco.com/graphic-organizers-in-math-2312666 (2) Graphic Organizer – *KWL* https://youtu.be/qGoHyEyl5bU (3) *Create a WebQuest with ChatGPT Open AI* https://youtu.be/3ewFg30kMrs (4) *How to Create Your Own Middle School Math Manipulatives for the Middle School Math Classroom Teacher* https://youtu.be/6TrVgO8D7f8 (5) *5 Fun activities for teaching math vocabulary* https://blog.flocabulary.com/math-vocabulary-activities/ **Evidence of Understanding:** (1) For the draft lesson plan you submitted, develop the materials/Tools you will be using. This may include links to instructional videos, docs, google docs, google forms, other websites, a WebQuest with interactive assignments, and/or hard copies. (2) Do not submit materials that you did not create without citing the source(s)! (3) Paper and Pencil Tasks are not active learning!!! (4) Submit actual materials or links on Blackboard (if links, make sure they have public access)	4/9/24 11:59 pm

Module 11	**Topic:** Lesson Plan Evaluation/Assessment **Videos and Links to review (on Blackboard):** (1) Read *Aligning Assessment to Brain Science Readings and Evidence of Understanding* https://www.youcubed.org/evidence/aligning-assessment-brain-science/ (2) Read *10 Formative Assessment Examples That Work* https://www.mashupmath.com/blog/formative-assessment-examples (3) View *Summative Assessment: Overview & Examples* https://youtu.be/SjnrI3ZO2tU **Evidence of Understanding:** (1) For the draft lesson plan you submitted, develop the assessments/evaluations (tools) you will be using. (2) Do not submit materials that you did not create without citing the source(s)! (3) Submit actual materials or links on Blackboard (if links, make sure they have public access)	4/16/24 11:59 pm
Module 12	**Topic:** Final Project (100 Points) **Evidence of Understanding:** (1) Make edits/revisions to your lesson plan, materials, and finalize for submission on Blackboard. (2) Record your teaching/demonstration video for submission on Blackboard. (3) You may submit links to folders, google folders, etc.	4/30/24 11:59 pm

Final Word: I reserve the right to adjust the course syllabus or change assignments as needed.

Rubrics:
Final Project (100 Points):

- Based on the foundations of Project-Based Learning, the 5-E Model of Lesson Planning and Unit Planning, you will be developing and creating a Lesson Plan for Texas Essential Knowledge and Skills Mathematics (TEKS) https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=19&pt=2&ch=111 utilizing the pedagogical approach of integrating hands-on student experiences and active learning. The lesson plan should be an original you developed.

- The lesson plan must include Tools, Tasks and Strategies for each 5E component.

- Materials/Tools – actual items or links – must be submitted with the lesson plan.

- A demonstration video must be submitted with the lesson plan. You may teach the lesson or describe/demonstrate each of the components.

Final Exam (Discretion of the instructor): *A final exam is not planned for this course. However, if it is evident that students are not completing the readings or viewing the video, a final exam will be integrated in substitution for the final project. Advance notice will be given to students of implementation of a final exam.*

Video Observation Hours:

As you view an assigned video, you will complete the video observation log affirming the time spent viewing the videos. This document will be submitted at the end of the semester, reviewed and submitted to the Teacher Education Department (5 Points).

Log Below:

MSED4310
VIDEO OBSERVATION ASSIGNMENT LOG SHEET

Name of Student: 80# _____

Content**:**

Date	***Time-In***	***Time-Out***		***Video Link***
			1	Border Problem Part I
			2	Fish is Fish https://www.youtube.com/watch?v=cvp5FoINnnM
			3	"Mistakes" https://www.youcubed.org/resources/mistakes-video/
			4	Border Problem Part II
			5	Defending Reasonableness: Division of Fractions
			6	Creating tools/materials: (1) *Graphic Organizers in Math* https://www.thoughtco.com/graphic-organizers-in-math-2312666 (2) Graphic Organizer – *KWL* https://youtu.be/qGoHyEyl5bU (3) *Create a WebQuest with ChatGPT Open AI* https://youtu.be/3ewFg30kMrs (4) *How to Create Your Own Middle School Math Manipulatives for the Middle School Math Classroom Teacher* https://youtu.be/6TrVgO8D7f8 (5) *5 Fun activities for teaching math vocabulary* https://blog.flocabulary.com/math-vocabulary-activities/
			7	Defending Reasonableness: Notion of Proof Part I
			8	Defending Reasonableness: Notion of Proof Part II
			9	a) GeoGebra (https://www.geogebra.org/) b) "PBS Math Club" (https://nm.pbslearningmedia.org/collection/pbs-math-club/#.WmY9epM-fJM) c) "NCTM Illuminations" (https://illuminations.nctm.org/Search.aspx?view=search&gr=6-8) d) "Get The Math" https://www.thirteen.org/get-the-math/ e) "Making a GeoGebra app" https://www.geogebra.org/a/14
			10	Surface Area
			11	The 5E Instructional Model (1) Review The 5E Instructional Model https://youtu.be/bDPh3vxKdfc (2) 5E Quick Review https://youtu.be/zJopF8p-VDs

Date	*Time-In*	*Time-Out*		*Video Link*
				(3) Read the article: What Is the 5 E Instructional Model? https://www.thoughtco.com/5-e-instructional-model-4628150 (3) Read the article: How to Use the 5Es in Remote Math Instruction https://www.edutopia.org/article/how-use-5es-remote-math-instruction
			12	first 3 minutes of Tour of Mathematical Connections (Boaler) (https://youtu.be/7FE_8wGgw_M
			13	Summative Assessment: Overview & Examples https://youtu.be/SjnrI3ZO2tU

The following student _____has completed _____ hours of video observation. If you have any questions, you may contact me at rllynch@utep.edu

Ruby L. Lynch-Arroyo, PhD, Part-time Instructor, COE _____

Date: