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

SCED 4367 (21459)
ONLINE
Teaching Mathematics in Secondary School
Spring 2021

This syllabus is subject to change as needed. Any changes to the syllabus will be announced via email or posted on Blackboard. Please note this course is a 100% Online Course.

Instructor Contact Information: Ruby Lynch-Arroyo, PhD
Contact/E-mail: rllynch@utep.edu
Office Hours: Virtual on Blackboard Zoom Thursdays 2:00 PM – 4:00 PM, via email, By appointment via Zoom.

Course Philosophy and Description:

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

A. An appreciation of the discipline of mathematics itself.

B. An understanding of how students learn and construct ideas.

C. An ability to design and select challenging tasks, create problem-solving environments.

D. The ability to integrate appropriate, mathematically, and/or scientifically meaningful assessment within the teaching process.

One of the main components of teaching is helping students to "discover" mathematics for themselves by creating successful inquiry-based, active learning environments, a friendly atmosphere, and an "open mind" approach. The goal of teaching is not only for students to find the correct answer, but to find answers using the "best" method. Hence, a teacher needs to promote students' thinking, to encourage searching for different methods leading to the same answer. 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 in secondary classrooms.

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 teaching in secondary classrooms. 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:

- Exploring innovative learning theories and techniques of teaching and learning including problem-based and inquiry, open-ended approach.
- Studying how to apply general and content methods of teaching and learning in diverse classroom settings.
- Helping the students to create successful learning environment in teaching and learning.
- Writing and analyzing lesson plans that support the learning cycle.
- 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)
- Demonstrating use of educational technology within lesson plan development and mini-teaching experiences.
- Demonstrating understanding of critical reading of texts and web sites through writing and discussion.
- Demonstrating reflection about teaching and learning through writing and discussion.
- Writing and discussion to demonstrate an informed perspective about curriculum and related educational issues.
- Addressing the domain and competencies that will prepare you for state certification content exam [TeXes].

Course Structure:

Classes for this course are asynchronous online (UTEP Blackboard). Asynchronous classes will be a combination of PowerPoint/Video lecture, Blackboard discussion boards, individual/group course assignments and exercises, and project development. It is expected that students will participate in all activities and components of the course.

SCED 4367 Required Texts:
Captivate, Activate, and Invigorate the Student Brain in Science and Math, Grades 6-12 by John

Almarode. ISBN -13: 9781452218021

Connecting Mathematical Ideas: Middle School Video Cases to Support Teaching and Learning by Boaler, J. Second Edition. ISBN-13: 9780325078182

Optional Texts/Resources:

National Research Council. (2005). How Students Learn Mathematics in the Classroom. Paperback 5th Ed. ISBN13: 978-0309089494 ISBN10: 0309089492 The following is the link to this book on Amazon.com:http://www.amazon.com/dp/0309089492/?tag=mh0b-20&hvadid=7006650452&hvqmt=e&hvbmt=be&hvdev=c&ref=pd_sl_7mv6j40j4h_e

Jackson, R. R. (2009). Never work harder than your students and other principles of great teaching. Alexandria, VA: ASCD. ISBN- 978-1-4166-0757

Brooks, J.G., & Brooks, M.G. (1999). In Search of Understanding: The Case for Constructivists Classrooms. Alexandria, VA: ASCD.

Canestari and Marlow (2013). Educational Foundations: An Anthology of Critical Readings (Third Edition). Sage Publications ISBN-13:978-1452216768

Ornstein, A.C., Pajak, E. F., & Ornstein, S.B. (2007). Contemporary Issues in Curriculum (Fourth Edition). Pearson ISBN 0-205-48925-7

Cuban, L. (2013). Inside the Black Box of Classroom Practice: Change Without Reform in American Education. Harvard Education Press ISBN 978-1-61250-556-5

Wiliam, D. (2011). Embedded Formative Assessment. Solution Tree Press ISBN 978-1-934009-30-7

Burgess, D. (2012), *Teach Like a Pirate: Increase Student Engagement, Boost Your Creativity, and Transform Your Life as an Educator*. Dave Burgess Consulting, Inc ISBN-13: 860-1401291688; ISBN-10: 0988217600

Additional materials/resources we will be using:

Some required readings will be scanned and placed on blackboard or you will be provided with appropriate web links:

- Texas Essential Knowledge and Skills (TEKS) for all content areas and grade levels. http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html

- Texas College Readiness Standards

http://www.thecb.state.tx.us/index.cfm?objectid=EADF962E-0E3E-DA80-BAAD2496062F3CD8

- Common Core Standards
http://www.corestandards.org/

- These websites provide a wide selection of virtual manipulatives for teaching mathematics:
http://nlvm.usu.edu/en/nav/vlibrary.html

- Book "How Students Learn: Mathematics in the Classroom".
You can read it online at http://www.nap.edu/catalog.php?record_id=11101

This course will integrate English Language Proficiency Standards (ELPS) for English Learners (ELs) to provide strategies for language acquisition and academic success in all content areas for students at different levels (beginning, intermediate, advanced, and advanced high) in the domains of listening, speaking, reading, and writing. You can find the ELPS standards http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4 and presentations about ELPS and Texas English Language Proficiency Assessment System (TELPAS) at http://www.esc4.net/users/0001/docs2/122-ELPS.pdf

Materials:

Electronic Device and textbooks (hardback/e-book).

Assignments in SCED4367:

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

Game Development/Collaboration (25 points)
Based on the description of professional develop task #2, Captivate, Activate, and Invigorate, collaboratively develop a game to teach a high school Texas Essential Knowledge & Skills (TEKS) standards mathematical concept http://corestandards.org/assets/CCSSI_Math%20Standards.pdf . (50% of game development grade).
Review/Play two (2) other students' games and provide specific feedback by answering these questions (50% of game development grade):
• How did you feel about the game as a teaching strategy?
• Were you engaged?
• How would you modify/improve the game?
• What evidence supports your answers?

Final Project/Video-Website
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 Unit Lesson Plan/Website-Webquest for Texas Essential Knowledge and Skills - **TEKS (student choice) "Mathematics – High School Geometry"** http://ritter.tea.state.tx.us/rules/tac/chapter111/ch111c.html utilizing the pedagogical approach of three (3) learning centers/stations integrating hands-on student experiences. You will videotape a 'tour' for each center/station demonstrating what students would do in each center/station (as if you were the student). Each center/station should take no longer than ten (10) minutes for students to complete the activity. Centers/stations are prepared for face-to-face instructions, yet easily adaptable to online learning as a 'Webquest' project utilizing a website you will create. Each center/activity are all integrated within the concepts of the chosen standard.
Your website (Webquest Project) must include the following:

1. Unit Lesson Plan (20% of final project grade)
2. Station Lesson Plans (15% of final project grade)
3. Stated Objective(s) (5% of final project grade)
4. Resource materials: handouts, links, list of materials, video etc. for each center/station (15% of final project grade)
5. Video demonstrations/directions of/for each station (student-user friendly) (20% of final project grade)
6. Visually engaging website with graphics, etc. (15% of final project grade)
7. Forms of formative and summative evaluation for each center/station (10% of final project grade)

You may use *any* free website building platform including (but not limited to) Wix, Weebly, Google, WordPress, Webs.com, Websitebuilder.com, or any other that you are comfortable with using. If you already have an established website, you may add a tab for SCED4367 (easy to navigate to). Final Project/Website-Webquest link will be **due on May 5th.**

Guiding Principles for this Course: TEXES **Domains**

TeXes Mathematics Domains (7-12): cms.**texes**-ets.org/index.php/download_file/view/806/259/

Student Learning Outcomes

"*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*.

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
http://tea.texas.gov/Texas_Educators/Preparation_and_Continuing_Education/Approved_Educator_Standards/
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 assignments. In extenuating circumstances, LATE ASSIGNMENTS WILL BE ACCEPTED with a grace period of 72 hours and a point deduction of 30%.

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>.

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.

F. Professionalism

- Consistent attendance, punctuality, 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, whole class, 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 probably, disagree, we need to do so within a community of respect; and
    - Provide your classmates with supportive critique and constructive feedback.

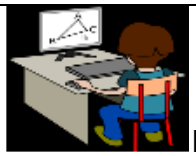
H. Regarding COVID-19 Precautions:

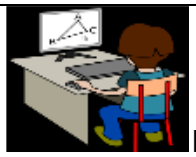
The University of Texas at El Paso requires everyone to wear a mask in common spaces, or where two or more individuals are located, including, but not limited to, classrooms. You must wear a mask covering your nose and mouth at all times in this class. If you choose not to wear a mask, you may not enter the classroom. If you remove your mask, you will be asked to put it on and/or leave the classroom. Students who refuse to wear a mask and/or follow preventive COVID-19 guidelines will be dismissed from the class and will be subject to disciplinary action according to Section 1.2.3 Health and Safety and Section 1.2.2.5 Disruptions as defined in the UTEP Handbook of Operating Procedure.

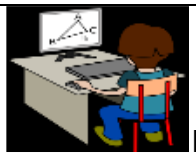
For each day that you attend campus—for any reason—you must complete the questions on the UTEP screening website (https://screening.utep.edu). The website will verify if you are permitted to attend class in-person. Under no circumstances should anyone come to class when feeling ill or exhibiting any of the known COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, and alternative instruction will be provided. Students are advised to minimize the number of encounters with others to avoid infection.

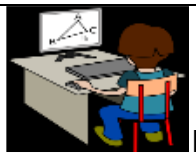
Please note that if COVID-19 conditions deteriorate in the City of El Paso, all course and lab activities will be transitioned to remote delivery. Full UTEP Health Policy https://www.utep.edu/resuming-campus-operations/_Files/docs/Temp-Health-Policy-Final.pdf. new health screening tool that is now available to all students, faculty, staff, and visitors at screening.utep.edu.

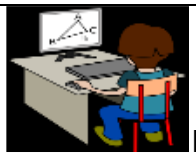
Tentative Online Course Outline: Secondary Mathematics Methods
SCED4367 Spring 2021
Lynch-Arroyo
NOTE: All topics, assignments, and due dates are subject to change at the instructor's discretion

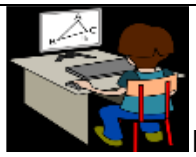
Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 1: January 21st	**Online Assignments:** **View Instructor Video: Topics-** (1) Instructor Introduction (2) Review Syllabus and Textbooks (3) Conversations around connected ideas in mathematics, teacher language in math talk, representations, conceptual knowledge **(4)** Standards, Backwards Design, Technological, Pedagogical and Content Knowledge (TPaCK) http://www.tpack.org/ **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-minute video introducing yourself (graded), post link on Blackboard. In the video include 3 things about yourself - 2 that are true and 1 thing that is false. Do not state what is true and what is false. (2) Post video or link in Blackboard discussion (3) Review your classmates' videos and post which thing you thought was a lie about them. (4) Respond to answers given by your classmates with the correct answer. Think about how many inaccurate assumptions were made! Ponder: How can we avoid making assumptions and stereotyping students before we	January 27th

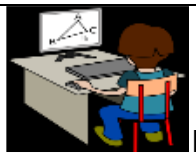
Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 1: January 21st (continued)	get to really know them? **Readings and Evidence of Understanding:** (1) *Connecting Mathematical Ideas*, Chapter 1 – Opening the Door to My Classroom (2) *Captivate, Activate, and Invigorate,* Chapter 1- Recipe for Engaged Brain (3) 3-2-1 Exit Ticket (graded), *Captivate, Activate, and Invigorate*, pp 14-15, Submit on Blackboard	January 27th
Week 2: January 28th	**Online Assignments:** **View Instructor Video: Topics-** **(1)** Review of Border Problem Part I and Fish is Fish and • NCTM process standards (http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/Process) • Texas Essential Knowledge & Skills (TEKS) Standards (http://ritter.tea.state.tx.us/rules/tac/chapter111/ch111c.html) ***(2)*** *Captivate, Activate, and Invigorate,* Stop-n-Think Box 3.6, pp 60-62 (Preview) Readings and Evidence of Understanding: *(1) Connecting Mathematical Ideas*, Chapter 2, and view video case - (*Building on Student Ideas, The Border Problem Part I)*: watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used.	February 3rd
Week 3: February 4th	**Online Assignments:** (1) View Instructor Video: Topics- Misconceptions and Effective Questioning Readings and Evidence of Understanding: (2) *Connecting Mathematical Ideas*, Chapter 3, and view video case - (Building Understanding of Algebraic Representation, The Border Problem Part II): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. (graded) (3) *Captivate, Activate, and Invigorate,* Chapter 3- Prime the Brain, pp56-60. (4) *Captivate, Activate, and Invigorate* Stop-n-Think 3.5 and 3.6 (graded)	February 10th

Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 3: February 4th (continued)	(5) *Captivate, Activate, and Invigorate,* Professional Development Task 1, 2, & 3, pp 62-63 (graded)	February 10th
Week 4: February 11th	**Online Assignments:** (1) View Instructor Video: Topics- Mathematical Reasoning, Sense-making, Pedagogical Moves, Role of Skeptics <u>Readings and Evidence of Understanding:</u> (2) *Connecting Mathematical Ideas*, Chapter 4, and view video case - (Defending Reasonableness: Division of Fractions): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. (3) *Captivate, Activate, and Invigorate,* Chapter 4- Captivate with Novelty (4) Exit Ticket, *Captivate, Activate, and Invigorate,* Chapter 4, pp 89-90 (Graded) (5) Professional Development Task, *Captivate, Activate, and Invigorate,* 1 & 2, p. 90 -91 (Graded)	February 17th
Week 5: February 18th	**Online Assignments:** (1) View Instructor Video: Topics- Justification, Providing Multiple Opportunities for Success, Integrating Manipulatives, Cooperative/Collaborative/Inquiry-Based/Project-Problem-Based Learning, Importance of Closure, Essential Questions, Blooms Revised Taxonomy, Student Choice <u>Readings and Evidence of Understanding:</u> (2) *Connecting Mathematical Ideas*, Chapter 5, and view video case - (Defending Reasonableness: Notion of Proof Part I): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. (3) *Captivate, Activate, and Invigorate,* Chapter 5- Establish Relevance	February 24th

Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 5: February 18th (continued)	(4) Professional Development Task #2, *Captivate, Activate, and Invigorate,* Chapter 5, p.121, Develop a Game (Graded)	
Week 6: February 25th	**Online Assignments:** • View Instructor Video: "Sticky Learning", Cross-Curricular Connections, Integrating Writing Readings and Evidence of Understanding: • *Connecting Mathematical Ideas*, Chapter 6, and view video case - (Defending Reasonableness: Notion of Proof Part II): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. • *Captivate, Activate, and Invigorate,* Chapter 7- Make Learning a Long-Lasting, Invigorating Experience • Stop-n-Think Box, *Captivate, Activate, and Invigorate*, 7.8, p.169 (Graded) • Review/Play two (2) other students' games and provide specific feedback (Graded)	March 3rd
Week 7: March 4th	**Online Assignments:** • View Instructor Video: Checking for Understanding, Process/Content, Formative/Summative Assessment, Providing Safe Learning Environments (face-to-face & remote), random selection, chunking, key understandings. Readings and Evidence of Understanding: • *Connecting Mathematical Ideas*, Chapter 7, and view video case - (Defending Reasonableness: Class Participation): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. • *Captivate, Activate, and Invigorate,* Chapter 6- Too Fast, Maintaining an Engaging Pace • Exit Ticket (modified), *Captivate, Activate, and Invigorate*, p.147 (google document) (Graded)	March 10th

Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 7: March 4th (continued)	• Stop-n-Think Box, *Captivate, Activate, and Invigorate,* Discussion Circles, 6.5, p.139 (Graded)	
Week 8: March 11th	**Online Assignments:** • View Instructor Video: Models, Background Knowledge, Real World Connections, Differentiation, Level Up/Down Readings and Evidence of Understanding: • *Connecting Mathematical Ideas*, Chapter 8, and view video case - (Volume of Prisms & Cylinders): watch, analyze and write a three (3) paragraph reflection of the pedagogical approaches used. • *Captivate, Activate, and Invigorate,* Chapter 2- Building Background Knowledge • Professional Development Task (partner work), *Captivate, Activate, and Invigorate*, #2, p.41 (google document) (Graded) • Using technology to teach mathematics: Explore and Review the following applications. (1) GeoGebra (https://www.geogebra.org/) Desmos (https://www.desmos.com/) (2) "Zeros of Cubics" (3) "Mathematics of Motion" (4) Effects of Parameters (Desmos) (5) "Making a GeoGebra app" • Complete and submit review sheet of sites (Graded)	March 24th
Week 9: March 18th	**SPRING BREAK**	
Week 10: March 25th	**Online Assignments:** • View Instructor Video: Memorization vs. Understanding, Models to Formulas, Scaffolding Knowledge, Academic Vocabulary Building, Math Talk/Engaging Students in "math communication", Error Analysis	March 31st

Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 10: March 25th (continued)	<u>Readings and Evidence of Understanding:</u> • *Connecting Mathematical Ideas*, Chapter 9, and view video case - (Surface Area): watch and analyze (Script Math Talk/Moves in the Video) • *Captivate, Activate, and Invigorate,* Chapter 3- Prime the Brain • Stop-n-Think Box, *Captivate, Activate, and Invigorate*, #3.4, p.52, K-W-L (Graded)	March 31st
Week 11: April 1st	**Online Assignments:** **View Instructor Video: Topics-** 5-E Lesson Planning Model, Unit Planning, Project-based learning stations, student engagement, student positioning, mathematical disposition, Webquest, Final Exam Project/Video/Website Review <u>Readings and Evidence of Understanding:</u> • *Captivate, Activate, and Invigorate,* Chapter 1- Review • *Captivate, Activate, and Invigorate,* Chapter 8 (Unit Planning) • Stop-n-Think Box, *Captivate, Activate, and Invigorate,* # 1.2 (p.9), 1.3 (p.11), 1.4 (p.13) (Graded) • Professional Development Task, *Captivate, Activate, and Invigorate*, #2, p.16 (Graded) • Begin working on Final Project/Video/Website	April 7th
Week 12: April 8th	**Online Assignments:** • Final Project/Video/Website Work • Submit website link (Graded)	April 14th
Week 13: April 15th	**Online Assignments:** • Final Project/Video/Website Work • Post on Website Draft Unit Plan (Graded)	April 21st

Week/Day	 **Remote Learning Agenda/Assignments**	**Assignment Due Date**
Week 14: April 22nd	**Online Assignments:** • Final Project/Video/Website Work • Post on Website Station Lesson Plans (Graded).	April 28th
Week 15/16: April 29th	**Online Assignments:** • Final Project/Video/Website Work Finalized (Graded) • Post on Website materials & Video for Stations #1 - 3	May 5th

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

Introductory Video Description/Grading Rubric (25 points)
(1) Prepare a 2-3-minute video introducing yourself. In the video include 3 things about yourself - 2 that are true and 1 thing that is false. Do not state what is true and what is false.
(2) Post link to the video/or the video on Blackboard
(3) Review your classmates' videos and post which thing you thought was a lie about them.
(4) Respond to answers given by your classmates with the correct answer. Think about how many inaccurate assumptions were made! Ponder: How can we avoid making assumptions and stereotyping students before we get to really know them?

Game Development/Collaboration (25 points)
Based on the description of professional develop task #2, Captivate, Activate, and Invigorate, collaboratively develop a game to teach a high school Texas Essential Knowledge and Skills (TEKS) standards mathematical concept http://corestandards.org/assets/CCSSI_Math%20Standards.pdf. (50% of game development grade).
Review/Play two (2) other students' games and provide specific feedback by answering these questions (50% of game development grade):

- • How did you feel about the game as a teaching strategy?
- • Were you engaged?
- • How would you modify/improve the game?
- • What evidence supports your answers?

Weekly Assignments including, but not limited to Stop-n-Think Boxes, Professional Development Tasks, Exit Tickets, NM Teach Rubrics/Scripting of Videos are meant to be simpler assignments demonstrating critical thinking and understanding. These assignments should not be essays of great length. Submit complete, succinct responses integrating topics and concepts learned in that lesson. **(Grading varies depending on the assignment – maximum points = 20).**

Final Project/Video-Website Description/Grading Rubric (40% of final grade)

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 Unit Lesson Plan/Website-Webquest for Texas Essential Knowledge & Skills or TEKS (student choice) "Mathematics – High School Geometry) http://corestandards.org/assets/CCSSI_Math%20Standards.pdf utilizing the pedagogical approach of three (3) learning centers/stations integrating hands-on student experiences. You will videotape a 'tour' for each center/station demonstrating what students would do in each center/station (as if you were the student). Each center/station should take no longer than ten (10) minutes for students to complete the activity. Centers/stations are prepared for face-to-face instructions, yet easily adaptable to online learning as a 'Webquest' project utilizing a website you will create. Each center/activity are all integrated within the concepts of the chosen standard.

Your website (Webquest Project) must include the following:

1. Unit Lesson Plan (20% of final project grade)
2. Station Lesson Plans (15% of final project grade)
3. Stated Objective(s) (5% of final project grade)
4. Resource materials: handouts, links, list of materials, video etc. for each center/station (15% of final project grade)
5. Video demonstrations/directions of/for each station (student-user friendly) (20% of final project grade)
6. Visually engaging website with graphics, etc. (15% of final project grade)
7. Forms of formative and summative evaluation for each center/station (10% of final project grade)

You may use *any* free website building platform including (but not limited to) Wix, Weebly, Google, WordPress, Webs.com, Websitebuilder.com, or any other that you are comfortable with using. Final Project/Website-Webquest link will be **due on May 5th.**