



“The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.” -- William Arthur Ward, writer

SCED 4367(21629)/4368 (25960) **HYBRID**
Teaching Mathematics and Science in Secondary School
Spring 2020 **Thursdays, 4:30 pm-7:20 pm, EDUC 311**

This syllabus is subject to change as needed. Any changes to the syllabus will be announced in class and/or posted on Blackboard. Please note this course is a hybrid course: 50% face to face and 50% online.

Instructor Contact Information: Ruby Lynch-Arroyo, PhD

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Office Hours: Thursdays, 3:30 pm – 4:30 pm, EDUC 309; Online Classes: Thursdays, 3:30 pm-5:30 pm via Blackboard or Google Classroom; or by appointment/email.

Course Philosophy and Description:

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

- A. An appreciation of the discipline of mathematics and/or science itself;
- B. An understanding of how students learn and construct ideas;
- C. An ability to design and select challenging tasks, create problem-solving environment
- 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 or science 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. 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, Next Generation Science Standards (NGSS), 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 hybrid course are face-to-face and online (UTEP Blackboard and/or google classroom). Face-to-face classes will be a combination of lecture, guided instruction, classroom discussion, classroom exercises and project development. Online classes will consist of individual/group assignments/projects, online exercises, discussion boards, and project development. A designated one-time Saturday field experience is required outside of the normal class meeting times. It is expected that students will attend all face-to-face class sessions and participate in all activities (face-to-face, online and field experience).

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

SCED 4368 Required Texts:

Captivate, Activate, and Invigorate the Student Brain in Science and Math, Grades 6-12 by John Almarode. ISBN -13: 9781452218021

Action Science: Relevant Teaching and Active Learning by Robertson, W. ISBN: 9781452256566
Robertson, W. (2014). *Action Science: Relevant Teaching and Active Learning*. Paperback ISBN 9781452256566

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

National Research Council. (2005). *How Students Learn Science in the Classroom*. Paperback. ISBN: 0-309-07433-9 (hardcover) ISBN-13: 978-0309089494 ISBN-10: 0309089492 The following is the link to this book on Amazon.com: https://www.amazon.com/How-Students-Learn-Mathematics-Classroom/dp/0309089492/ref=sr_1_1?ie=UTF8&qid=1485109263&sr=8-1&keywords=National+Research+Council.+%282005%29.+How+Students+Learn+Science+in+the+Classroom.

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.theceb.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 and science:
<http://nlvm.usu.edu/en/nav/vlibrary.html>
<http://teach.oetc.org/manipulatives/virtual-manipulatives-science-examples>
<http://nlvm.usu.edu/>
- ❖ Book "How Students Learn: Mathematics in the Classroom".
You can read it online at http://www.nap.edu/catalog.php?record_id=11101
- ❖ Book "How Students Learn: Science in the Classroom".



You can read it online at

<https://www.nap.edu/search/?term=How+Students+Learn%3A+Science+in+the+Classroom&x=0&y=0>

This course will integrate English Language Proficiency Standards (ELPS) for English Learners (ELs) in order 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:

Bring Your Own Electronic Device [BYOD - if available and preferably a laptop or tablet/iPad] and textbooks (hardback/e-book).

Assignments in SCED4367/4368:

Active Field-Based Experience – 2020 Hornedo Middle School Saturday Math Camp	
Goals of the assignment	
The goal of field-based experience for this methods course is to give students first-hand experience observing in-service teachers and working 1-1 with middle school 8 th grade students. Although the Saturday camp focuses on Mathematics, your focus, as a student, is on the tools and strategies (pedagogy/methods) being used which are transferrable/adaptable to Science or Mathematics instruction. Requires El Pas Independent School District (EPISD) security clearance.	
Assignment directions: Field Service Hours	
Part I: <ul style="list-style-type: none"> • Students will be assigned an in-service teacher • Students will observe the lead teacher in the classroom to get a feel for their teaching style (3-4 Hours) • Students will meet with the teacher to the camp to get the materials and prepare to be knowledgeable on the day of the camp (1 Hour) Part II <ul style="list-style-type: none"> • Wear UTEP Shirt/Colors • 8:45am – 12:15pm (4 Hours), April 4th • Students will assist/co-teach with the in-service teacher/session during the camp • Complete K-W-L Reflection of pedagogy observed 	

Final Project: Learning Center Facilitation	
Goals of the assignment	
The goal of a learning center is to integrate active learning, hands-on activities (kinesthetic) that connect the mathematics and science concepts to concrete and/or real-world examples/activities. Additionally, students collaborate in problem solving and solution finding.	



Cross-curricular teams will prepare a lesson plan (refer to rubric) based on a “Big Idea” and agreed supporting content topics that demonstrate cross-curricular connections. Lesson plan template is on the Blackboard or Google Classroom for reference.

Assignment directions

Part 1: Each team will consult to determine the ‘Big Idea’/topic of lesson plan.

Part 2: Each team will prepare an 8-10-minute lesson and active learning lesson materials. Each learning center will have an 8 to 10-minute rotation. Assignment of student cooperative learning roles is essential to ensure active participation of all students in the group. Pacing and time management are critical to the success of the learning centers functionality.

Part 3: Each team member must print and complete the “Group Members Evaluation Form” located in Blackboard and in Rubrics <https://drive.google.com/file/d/1GHcjKVb-X9Jwh3jwHQa1qv9UvhO24OwR/view?usp=sharing>

Part 4: You must also evaluate your own contribution in completing this assignment.

Part 5: submit lesson plan and samples of hands-on activities on Blackboard or Google Classroom.

Estimated Total Possible Points [not inclusive of Extra Credit] = 400 to 600 Points

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

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

TeXes Science Domains (7-12): cms.texas-ets.org/index.php/download_file/view/804/259/

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/

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Table 1. Student learning outcomes and assessment

Student Learning Outcomes		Formative & Summative Assessments
<i>TeXes 7-12</i>	<i>By the end of the course, the student will be able to:</i>	<i>To evaluate these outcomes, the faculty member will use the following assessment procedures:</i>
V, VI	Develop an understanding of current issues, practices and directions in mathematics and science curriculum and the ability to inquire into these.	a. Class and online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections
V, VI	Develop knowledge and skills in educational research	a. Class and 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 mathematical and science education	a. Class and 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 and science	a. Pre/Post Test b. Pre/Post Survey c. Comprehensive Exams d. Written Reflections
ALL	Increase their confidence to teach mathematics and/or science	a. Mini-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 and science learning. Discover innovative methods of instruction to increase effectiveness and pupils' engagement, learning, and thinking.	a. Class and online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections d. Mini-Teaching Exercise
ALL	Improve their capacity to think reflectively and creatively about their teaching of mathematics and/or science.	a. Class and online interactive, Socratic discussions b. Quizzes and Exams c. Written Reflections d. Mini-Teaching Exercise
ALL	Increase their capacity to become an agent of change in the field of mathematics and/or science education through effective teaching and communication.	a. Class and 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. Class and 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/Google Classroom on the date indicated by 11:59 PM. LATE ASSIGNMENTS 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

In order 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 on the basis of 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 as a whole human being. My top priority in our classroom 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 classroom 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 classroom 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 meetings when you are scheduled to attend meetings (meetings with peers, instructor, whole class, etc./ Face-to-face (F2F) or on-line);
 - Come to the class and stay for the entire class
 - Note: Only half of this course is face-to-face; attendance is very important.
 - Assignments/work completed during F-2-F sessions cannot be made up.
 - Do not be distracted during scheduled meeting – F2f and Online (you need to be present and focused)
 - 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.

G. Extra Credit:

One opportunity for Extra Credit is offered as part of this course. Students who attend Dr. Jo Boaler's Lecture: Limitless: Learn, Lead and Live without Barriers on January 31, 2020 at 2:00 to 3:00 PM (PSCI Building, Room 208) and submit a single page reflection (Guidelines provided with rubrics in this syllabus) will receive points as designated in the guidelines up to a maximum of 20 points.



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Tentative Schedule Spring 2020
SCED4367/4368 Secondary Mathematics/Science HYBRID

Spring 2020 **Thursdays, 4:30 pm-7:20 pm, EDUC 311**

NOTE: All topics, assignments, and due dates are subject to change at the instructor’s discretion

Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
Module 01: Introduction, Constructivism, Pedagogical Framework					
Week 1: January 23 F2F 	Orientation to course: Syllabus & Schedule Course structure: Discussion TPACK/SCK/Tools, Tasks & Strategies: “What Is Technological Pedagogical Content Knowledge?” and Recipe for Learning as a Framework 5-E Lesson Components	<ul style="list-style-type: none"> Blackboard Cross-Curricular Partner Assignments Review <i>Captivate, Activate & Invigorate the Student Brain</i> reading process: Stop-n-Think Boxes, Professional Development Tasks, Chapter Exit Tickets, and online discussions 	<ul style="list-style-type: none"> Cross-Curricular Team Introductions 	<ul style="list-style-type: none"> Science Read: Chapter 1 and 2 in <i>Action Science</i>, pp 1-19 Preface & Chapter 1 in <i>Captivate, Activate & Invigorate the Student Brain</i> Submit Chapter 1: 3-2-1 Exit Ticket on Google Classroom by January 29 at 11:59 pm (15 points) 	<ul style="list-style-type: none"> Math Read Chapter 1, pp. 1-16 in <i>Why & How to Differentiate Math Instruction</i> in Small & Lin Book Preface & Chapter 1 in <i>Captivate, Activate & Invigorate the Student Brain</i> Submit Chapter 1: 3-2-1 Exit Ticket on Google Classroom by January 29 at 11:59 pm (15 points)
Week 2: January 30 Online 	<p>Review Components of Recipe for Learning in Chapter 1 in <i>Captivate, Activate & Invigorate the Student Brain</i>.</p> <p>Review NASA 5-E cross-curricular Lesson Plan https://nasaclips.arc.nasa.gov/teachertoolbox/the5e and e-clips using: https://nasaclips.arc.nasa.gov/video/launchpad/launchpad-solar-eclipses</p>		<ul style="list-style-type: none"> NASA Resource Review Professional Development Task #2 (page 16) in <i>Captivate, Activate & Invigorate</i> 	Complete NASA Lesson Plan/ Professional Development Task #2 (page 16) in <i>Captivate, Activate & Invigorate the Student Brain</i>	Complete NASA Lesson Plan/ Professional Development Task #2 (page 16) in <i>Captivate, Activate & Invigorate the Student Brain</i>



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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
	<p>Using the posted NASA lesson plan, identify components of Recipe for Learning in Chapter 1 in <i>Captivate, Activate & Invigorate the Student Brain</i>.</p> <p>Review Assignment with your Cross-curricular partner and complete Professional Development Task #2 (page 16) in <i>Captivate, Activate & Invigorate the Student Brain</i> as a team for each lesson plan on linked Google Document.</p>		<i>the Student Brain</i>	<p>Science Sample</p> <p>https://drive.google.com/file/d/1Qtw5Q2KtICXS8Uz8I-CofwjT5LayB8J/view?usp=sharing</p> <p>Submit on Google Classroom by February 5 at 11:59 pm (20 points)</p>	<p>Math Sample</p> <p>https://drive.google.com/file/d/16sHba-1SMqTgtlHiZyIQraexLqy3yviev/view?usp=sharing</p> <p>Submit on Google Classroom by February 5 at 11:59 pm (20 points)</p>
January 31 st Extra Credit	<p>College of Science Guest Lecturer: Jo Boaler, PhD Stanford Graduate School of Education <i>Limitless: Learn, Lead and Live Without Barriers</i> PSCI Building Rom 208 2:00 Pm – 3:00 PM</p>			<p>To receive extra credit, submit a 1-page reflection of the lecture and how it applies to science education.</p> <p>Due: February 5th at 11:59 PM (20 points)</p>	<p>To receive extra credit, submit a 1-page reflection of the lecture and how it applies to mathematics education.</p> <p>Due: February 5th at 11:59 PM (20 points)</p>
Module 2: Learning through Discovery –Vocabulary, Models & Background Knowledge					



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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
Week 3 February 6 Online 	Building Background Knowledge Using Models Academic Content Vocabulary	Science Read: Chapter 2 <i>Captivate, Activate & Invigorate the Student Brain</i> Chapter 6 in <i>Action Science</i> Math Read: Chapter 2 <i>Captivate, Activate & Invigorate the Student Brain</i> Chapter 3: <i>Number Operations</i> in Small & Lin Book		With your cross-curricular partner(s), prepare a 5-7-minute mini-hands-on lesson of your assigned vocabulary strategy (see Blackboard) illustrating applications for Science and Mathematics. This lesson will be taught to the class in the next F-2-F class session.	With your cross-curricular partner(s), prepare a 5-7-minute mini-hands-on lesson of your assigned vocabulary strategy (see Blackboard) illustrating applications for Science and Mathematics. This lesson will be taught to the class in the next F-2-F class session.
Week 4: February 13 F2F 	Engaging Students with Vocabulary Mini-Lessons (Cross-curricular teams' teaching). Assessing Background Knowledge Inquiry-Based/Collaborative/Cooperative/Active Learning Elements of Curriculum/Lesson Planning: Standards Introduction to Depth of Knowledge/Blooms Revised Taxonomy Lesson Cycle	<ul style="list-style-type: none"> • <u>Review</u> Texas Essential Knowledge and Skills (TEKS) for individual content areas http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html • <u>Select</u> a TEKS and Student Expectation (Task) and analyze Depth of Knowledge Science may review Next	Ch 2 Concept Development Exit Ticket (10 points). P. 40 <i>Captivate, Activate & Invigorate the Student Brain</i> Engaging Professional Development Task #1 (modified) (10 points) P. 41 <i>Captivate, Activate & Invigorate the Student Brain</i>	Science Read: Chapter 4 <i>“Linking Pedagogy and Science Content in Practice”</i> in Action Science, pp 31-40 Chapter 5 Why Do We Need to Know This? <i>Captivate, Activate & Invigorate the Student Brain</i>	Math Read: Chapter 2 <i>Algebra</i> in Small & Lin Book Chapter 5 Why Do We Need to Know This? <i>Captivate, Activate & Invigorate the Student Brain</i>



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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
	Critical Thinking Skills	Generation Science Standards (NGSS) https://www.nextgenscience.org/			
Week 5: February 20 Online 	Educative (Formative) Assessment: Formative Assessment Effective Questioning	Readings: Science Read: Chapter 6 “Unlocking Resources for Active Learning” in Action Science, pp 51-60 Math Read: Chapter 4, <i>Geometry</i> in Small & Lin book		Submit Chapter 5: Exit Ticket on Google Classroom (5 points) Due February 26 at 11:59 pm	Submit Chapter 5: Exit Ticket on Google Classroom (5 points) Due February 26 at 11:59 pm
Module 04: Assessment, Questioning & Active Learning					
Week 6: February 27 F2F 	Educative (Formative) Assessment: Formative Assessment Effective Questioning Active Learning Addressing the needs of diverse learners including English Language Learners Introduction to Learning Centers	Peer Collaboration	Engaging Professional Development Task #2 (modified) (10 points) P. 121 <i>Captivate, Activate & Invigorate the Student Brain</i>	Science Read: “Action Science Classroom Activities”, Chapter 8, in <i>Action Science</i> , pp 69-124. Chapter 3, Prime the brain: Activate Prior knowledge <i>Captivate, Activate & Invigorate the Student Brain</i>	Math Read: Chapter 5, <i>Measurement</i> in Small & Lin Book Chapter 3, Prime the brain: Activate Prior knowledge <i>Captivate, Activate & Invigorate the Student Brain</i>
Module 5: Field Service, Engaging Students, Strategies					




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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
Week 7: March 5 Online 	<ul style="list-style-type: none"> Field Service Hours Students will be assigned an in-service teacher Students will observe the lead teacher in their classroom to get a feel for their teaching style (3-4 Hours) Students will meet with the teacher two weeks prior to the camp to get the materials and prepare to be knowledgeable on the day of the camp (1 Hour) 		Classroom Observation Collaboration Pedagogical Content Knowledge Building	<ul style="list-style-type: none"> Review Materials provided by in-service teacher Chapter 4, Captivate with Novelty <i>Captivate, Activate & Invigorate the Student Brain</i> 	<ul style="list-style-type: none"> Review Materials provided by in-service teacher Chapter 4, Captivate with Novelty <i>Captivate, Activate & Invigorate the Student Brain</i>
Week 8: March 12 F2F 	<ul style="list-style-type: none"> Novelty: Thinking Outside the Box Collaboration/Cooperative Learning Emotionally Charged Events 		Entrance Ticket: Stop-n-Think Box 4.1, p. 68 (5 points) <i>Captivate, Activate & Invigorate the Student Brain</i> Stop-n-Think Box 4.7, p. 88 <i>Captivate, Activate & Invigorate the Student Brain</i>	Using NASA lesson from Week 2, https://drive.google.com/file/d/1Qtw5Q2KtICXS8Uz8I-CofwjT5LayB8J/view?usp=sharing , Complete Engaging Professional Development Task #1 (Modified – 1 st 4 bullet points only), p. 90 <i>Captivate, Activate & Invigorate the Student Brain</i> Due: March 20 by 11:59 pm	Using NASA lesson from Week 2, https://drive.google.com/file/d/16sHba-ISMqTgtlHiZyIQraexLqy3yvie/view?usp=sharing Complete Engaging Professional Development Task #1 (Modified – 1 st 4 bullet points only), p. 90 <i>Captivate, Activate & Invigorate the Student Brain</i> Due: March 20 by 11:59 pm
Spring Break March 16-20					
Week 9: March 26	Review Chapter 6, Too Much, Too Fast: Maintaining an Engaging Pace, <i>Captivate, Activate & Invigorate</i>		Active Learning	With your cross-curricular	With your cross-curricular




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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
F2F 	<i>the Student Brain</i> Other Strategies Too!		Practice of Strategies Implementatio n	partner(s), Complete Chapter 6 Exit Ticket (p. 147-8) and be prepared to teach strategy to the class at the next F2F session. <i>Captivate, Activate & Invigorate the Student Brain</i> Due: April 2 by 11:59 pm	partner(s), Complete Chapter 6 Exit Ticket (p. 147-8) and be prepared to teach strategy to the class at the next F2F session. <i>Captivate, Activate & Invigorate the Student Brain</i> Due: April 2 by 11:59 pm
Week 10: April 2 Online 	<ul style="list-style-type: none"> Replaced with Field Service Hours Requirement: Dr. Hornedo Middle School Saturday Mathematics Camp 			Review Materials provided by in- service teacher	Review Materials provided by in- service teacher
Week 10: April 4 Saturday F2F 	<p>Dr. Hornedo Saturday Math Camp Wear UTEP Shirt/Colors</p> <ul style="list-style-type: none"> 8:45am – 12:15pm (4 Hours) Students will assist/co-teach with an in-service teacher/session during the camp Complete K-W-L Reflection of pedagogy observed 		Observation Teaching experience Pedagogical Reflection	<ul style="list-style-type: none"> Submit K-W-L reflection of Field Service Observed Pedagogy Due April 9 at 11:59 pm (50 points) 	<ul style="list-style-type: none"> Submit K-W-L reflection of Field Service Observed Pedagogy Due April 9 at 11:59 pm (50 points)
Module 6: Final Project Learning Centers					
Week 11: April 9 Online	With your Learning Center Cross-curricular teams: <ul style="list-style-type: none"> Develop a hands-on learning center to present cross-curricular concepts for the April 30th class. Prepare Active Learning Activities, Assessment, Instructions, Rehearse (for pacing) Lesson should integrate pedagogy reviewed during 		Peer Collaboration	<ul style="list-style-type: none"> Prepare Mini-Lesson Due April 27th at 11:59 PM 	<ul style="list-style-type: none"> Prepare Mini-Lesson Due April 27th at 11:59 PM


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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
	<p>the course</p> <ul style="list-style-type: none"> • Students will rotate through the learning centers. • Be explicit in written directions and materials creation/ manipulation. • If you need specific manipulatives such as calculators, rulers, paper, etc., email (rlynych@utep.edu) the needs to me by April 27th • Completion of the task in the learning center should take approximately 10 minutes. • Individual Cross-curricular Team Planning Meetings with Instructor by appointment, email or online. 				
<p>Week 12: April 16 Online</p> 	<p>With your Learning Center Cross-curricular teams:</p> <ul style="list-style-type: none"> • Develop a hands-on learning center to present cross-curricular concepts for the April 30th class. • Prepare Active Learning Activities, Assessment, Instructions, Rehearse (for pacing) • Lesson should integrate pedagogy reviewed during the course • Students will rotate through the learning centers. • Be explicit in written directions and materials creation/ manipulation. • If you need specific manipulatives such as calculators, rulers, paper, etc., email (rlynych@utep.edu) the needs to me by April 27th • Completion of the task in the learning center should take approximately 10 minutes. • Individual Cross-curricular Team Planning Meetings with Instructor by appointment, email or online. • 	Peer Collaboration	<ul style="list-style-type: none"> • Prepare Mini-Lesson • Due April 27th at 11:59 PM 	<ul style="list-style-type: none"> • Prepare Mini-Lesson • Due April 27th at 11:59 PM 	
<p>Week 13: April 23 Online</p> 	<p>With your Learning Center Cross-curricular teams:</p> <ul style="list-style-type: none"> • Develop a hands-on learning center to present cross-curricular concepts for the April 30th class. • Prepare Active Learning Activities, Assessment, Instructions, Rehearse (for pacing) • Lesson should integrate pedagogy reviewed during the course • Students will rotate through the learning centers. • Be explicit in written directions and materials creation/ manipulation. • If you need specific manipulatives such as 	Peer Collaboration	<ul style="list-style-type: none"> • Prepare Mini-Lesson • Due April 27th at 11:59 PM 	<ul style="list-style-type: none"> • Prepare Mini-Lesson • Due April 27th at 11:59 PM 	

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Class/ Date HYBRID	Topics	Weekly Activities	F2F Active Learning Activities	Science Assignments Due	Math Assignments Due
	calculators, rulers, paper, etc., email (rllynch@utep.edu) the needs to me by April 27 th <ul style="list-style-type: none"> • Completion of the task in the learning center should take approximately 10 minutes. • Individual Cross-curricular Team Planning Meetings with Instructor by appointment, email or online. 				
Final Project Implementation: Active Learning with Learning Centers					
Week 14: April 30 F2F 	Final Project: Learning Centers Lesson Plans, Implementation and Active Participation in Learning Centers (100 points)			Submit Artifacts from Learning Centers Participation	Submit Artifacts from Learning Centers Participation
Week 15: May 7 Online	Course Evaluation Group Members Evaluation		Reflective Feedback	Complete Course Evaluation (Optional) Submit email (rllynch@utep.edu) documenting course evaluation completion (5 points extra) Complete the "Group Members Evaluation Form" and submit	Complete Course Evaluation (Optional) Submit email (rllynch@utep.edu) documenting course evaluation completion (5 points extra) Complete the "Group Members Evaluation Form" and submit

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

Final Project- Learning Center/ Lesson Plan – 100 points			
Category	Exceeds Standard	Meets Standard	Does Not Meet Standard

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Points	100 - 67	66 - 34	33 - 0
<i>Structure (Tools)</i>	Lesson Plan format is concise and includes Cross-Curricular/Real-world Connections. Tools address types of learners: kinesthetic, visual and auditory.	Lesson Plan format is somewhat concise and includes most Cross-Curricular/ Real-world Connections. Tools address types of learners: kinesthetic, visual and auditory.	Lesson Plan format is not concise and does not include Cross-Curricular/Real-world Connections. Tools do not address types of learners: kinesthetic, visual and auditory.
<i>Content (Tasks)</i>	Texas Essential Knowledge and Skills and Learning objective are stated and learning processes are clear and concise.	Texas Essential Knowledge and Skills and Learning objective are stated and learning processes are somewhat clear and concise.	Texas Essential Knowledge and Skills and Learning objective are not stated and learning processes are not clear and concise.
<i>Lesson Delivery (Strategies)</i>	Strategies for lesson delivery include interactive, hands-on approaches and differentiated instruction. Technology & Inquiry-Based/Active learning is embedded in lesson delivery.	Strategies for lesson delivery include some interactive, hands-on approaches and differentiated instruction. Technology & Inquiry-Based/Active learning is somewhat embedded in lesson delivery.	Strategies for lesson delivery does not include interactive, hands-on approaches and differentiated instruction. Technology & Inquiry-Based/Active learning is not embedded in lesson delivery.

FIELD OBSERVATION K-W-L (20 points)			
	Exceeds Standard 6 - 4	Meets Standard 3-2	Does Not Meet Standard 1-0
1. Depth of Reflection	Response demonstrates an in-depth reflection on, and personalization of, the theories, concepts, and/or strategies presented	Response demonstrates a general reflection on, and personalization of, the theories, concepts, and/or strategies presented	Response demonstrates a lack of reflection on, or personalization of, the theories, concepts, and/or strategies presented
2. Viewpoints	Viewpoints and interpretations are insightful and well supported. Clear, detailed examples are provided, as applicable.	Viewpoints and interpretations are supported. Appropriate examples are provided, as applicable	Viewpoints and interpretations are missing, inappropriate, and/or unsupported. Examples, when applicable, are not provided.
3. Evidence and Practice	Essay shows strong evidence of synthesis of ideas presented and insights gained throughout the assignment placement. The implications of these insights for the respondent's overall teaching practice are thoroughly detailed, as applicable.	Essay shows evidence of synthesis of ideas presented and insights gained throughout the assignment placement. The implications of these insights for the respondent's overall teaching practice are presented, as applicable.	Essay shows no evidence of synthesis of ideas presented and insights gained throughout the assignment placement. No implications for the respondent's overall teaching practice are presented, as applicable.
4. Self-Evaluations	Self-evaluation shows personal development related to goals set in the experiences.	Self-evaluation shows assessment of progress connected goals set in the	Self-evaluation is generalized, superficial and not connected to goals set in earlier the

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		experiences. Reflections are thoughtful and specific.	experiences.
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Exit Tickets, Engaging Professional Development Tasks, Stop-n-Think Activities (Embedded in Multiple Assignments)			
Category	Exceeds Standard	Meets Standard	Does Not Meet Standard
Points	20-15	14-7	6-0
Prompt(s) are addressed Shows consideration of the topic(s) Mechanics	The piece is thoughtful, engaging, and clearly written. The piece shows careful consideration of the topic at hand. It responds directly to the question or prompts and makes meaningful connections with the readings and course content. The piece has been proofread.	Shows adequate reflection along with some level of thoughtfulness and may or may not have responded directly to the question or prompt. It may contain grammatical or sentence structure errors that disrupt the flow of the narrative.	Does not adequately address the question or prompt and shows limited thoughtfulness.