

## BED/ELED 4311: Teaching Science in the Dual Language/Elementary School CRNs: 32121 & 32122

### Course Information

Location: Education Building Room 402

Time: Tuesday and Thursday 5:00 – 10:00 pm

### Contact Information

Instructor: William Medina-Jerez, PhD

Phone: 915-747-8608

Office: Education Building 604

E-mail: wjmedinajerez@utep.edu (Through Blackboard)

Office Hours: Tuesday 4:00 - 5:00 pm and Thursday 4:00 – 5:00 pm (June 12 –July 6)

*If you would like to come to my office at a different time, please email me to set up an appointment.*

I will try to answer Blackboard emails within the first day of receiving them (Monday-Friday).

E-mails received after 5:00 PM Friday will be answered by Monday morning.

### Purpose

The two major goals of this course are to ***assist preservice elementary teachers' (PSETs—you) in examining their beliefs about science teaching and learning*** and to ***portray science education from a multicultural viewpoint***. In this context, the teacher is an agent of social change, a practitioner who actively contributes toward establishing a pluralistic society by making the classroom one of the most important settings where gender, equity, anti-discriminatory principles and multicultural understanding are modeled and practiced (Rodriguez, 1998).

This course will also assist you in critically examining the theories, research, pedagogical approaches, and materials associated with effective learning and teaching in an elementary science/dual language classroom. This course will focus on the knowledge and skills you need to design and implement a science learning environment where every student is held to high expectations and encouraged to achieve maximum learning. You will learn to develop instructional strategies using the Texas Essential Knowledge and Skills (TEKS) for science, the Next Generation Science Standards (NGSS), STEM curricular materials, instructional models such as sheltered instruction and the 5E Instructional Model. During the Science Teaching event (See course calendar), you will use concepts from Standards I, III, VI, and V of the Pedagogy and Professional Responsibilities Standards (PPR) with particular emphasis on constructing and implementing instructional strategies, informal and formal assessment, and managing the learning environment. This course is also designed to address the following science standards from the K-4 Comprehensive Standards:

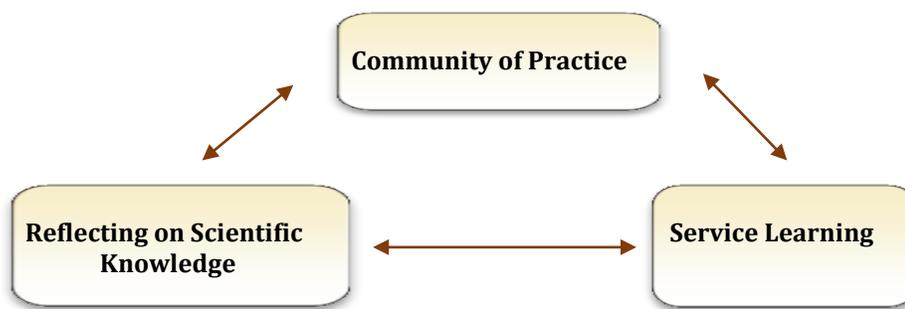
*Standard I:* The science teacher manages classroom field, and laboratory activities to ensure the safety of all students and the ethical care and treatment of organisms and specimens.

*Standard III:* The science teacher understands the process of scientific inquiry and its role in science instruction.

*Standard IV:* The science teacher has theoretical and practical knowledge about teaching science and about how students learn.

*Standard V:* The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.

## Guiding Principles for this Course



This course is organized around the community of practice and service learning principles and strands (Michaels, Shouse, & Schweingruber, 2008):

*Principle 1—Community of Practice:* is a concept that describes how people work together for their common interests and learn from each other's expertise to develop themselves personally and professionally. To form a community of practice in this course, the science lesson project is designed as a common goal that drives students to prepare themselves, help each other, and collaborate to achieve by the group. This collaboration entails peer- reviewing an Essay and the first draft of the 5E Lesson plan.

*Principle 2—Service Learning:* is an approach that aims to enrich learning experiences and strengthen communities through services. The Science Teaching event in this course is designed as an opportunity for PSETs to contribute what they learn in this course to elementary school students in the El Paso region.

*Principle 3—Reflecting on Scientific Knowledge* (Understanding how scientific knowledge is constructed). This strand will be addressed when reviewing the Nature of Science (NOS) topics. Proficient science learners understand that predictions and explanations can be revised on the basis of learning new facts, generating new evidence.

## Resources

There is no book for this course. There will be numerous handouts, class notes on lectures, discussions and presentations. I will make articles and other materials available throughout the course as needed. There is also a Blackboard platform to which you will be automatically connected by being registered for this course. The Blackboard tool is intended to be a supplement to this course; there you will be able to access, quizzes, assigned readings and other important resources you may want to review on your own.

Other materials we will be using:

- English Language Proficiency Standards (ELPS)  
<http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4>
- National Science Teachers Association (NSTA)  
<http://www.nsta.org/default.aspx>
- Science Teachers Association of Texas (STAT)  
<http://www.statweb.org/>
- Texas Essential Knowledge and Skills (TEKS)  
<http://www.tea.state.tx.us/index2.aspx?id=6148>
- Texas Safety Standards  
<http://www.utdanacenter.org/sciencetoolkit/safety/>
- The New Generation Science Standards (NGSS)  
[www.nextgenscience.org/next-generation-science-standards](http://www.nextgenscience.org/next-generation-science-standards).

## Technology Requirements

- Each participant must be able to use their UTEP Blackboard account. You **MUST** have both a UTEP email address and password to take this course.
- You must have access to UTEP email and Blackboard prior to the beginning of the second class meeting. If you do not have one yet, you may apply for your UTEP email account, login, and password from a form available online at: <https://newaccount.utep.edu>

**Technical Assistance:** The University of Texas at El Paso offers complete technical information and help desk support at: <http://issweb.utep.edu/techsupport/>.

## Professional Expectations of Students

Part of your preparation as a teacher includes following a professional code of behavior and responsibility. Therefore, you are expected to treat all members of the class and your instructor with respect. Consider each class as *a meeting with colleagues in your field* and a great opportunity to exchange ideas. Attending class meetings on time and remaining for the entire scheduled period, being well prepared, and participating in classroom discussions are key parts of professional behavior. It is your responsibility to:

- Examine the Blackboard platform for this class, and inform *your instructor by the second class meeting* if you run into difficulties interacting in this environment.
- Read all the class materials thoroughly and continually consult the course schedule in order to keep up on all information associated with this course.
- Participate fully in all class activities and collaborate closely with your teammates.
- Be actively present in class; stay focused on the learning activities.
- Submit ALL your course assignments via Blackboard and in the prescribed format.
- Be courteous and honest in communicating with others that shows respect and sensitivity to cultural, religious, sexual, and other individual differences among all class members.
- Provide constructive feedback that helps your teammates, class members, and the instructor improve their performance, and appreciate it when they provide you with the same.
- Use the assignment templates in the preparation and submission of your assignments. If you do not follow the directions presented in the templates you will lose points.
- **Set your cell phone into silent mode** before starting the class meeting. As stated above, each class is a meeting with colleagues in your field. Professionals turn off/silence their phones in a meeting with other professionals. A ringing phone disrupts because the sound of a phone attracts attention. Disruptions of the learning process are annoying.
- **iPads, tablets, or laptops in class:** I do not mind you using your iPad, tablet, or laptop in class as a resource for the learning taking place in the class meeting. Using your device in class for a different purpose shows a lack of respect for your teammates and instructor and disinterest in the course that is unprofessional.
- *Be persistent.* If you run into difficulties, do not wait! Contact your instructor (see Contact Information above), or check with one of your classmates through Blackboard email. Most problems are easily solved but we have to hear from you before we can help.
- Inform the instructor if you are going to be absent so that you can get an update on what you missed (i.e., assignments). If you miss class consult the PowerPoint Presentation (PPT) in the Content area/Class Notes of Blackboard.
- Be aware of your absences. It is the student's responsibility to call attention to their presence in the class (and sign the attendance sheet) if they come in after the attendance is taken. Inform your instructor as soon as possible if you have problems submitting your assignments on Blackboard. If the Blackboard system does not allow you to turn in the assignment, you must send it via email to your instructor before the due date. Assignments submitted one week after the due date will not be graded for full credit—see Assignment submission policy on page 8.

## Students Expectations of Instructor

You can expect me to be on time, prompt with assignments and feedback, knowledgeable in the topics being covered; create and provide opportunities for you to practice fundamental pedagogical content, and to bring in experts in the areas to augment my background either where needed or simply advantageous. To the best of my ability, I will treat all students equally, fairly, pleasantly, and be readily available for help outside class time.

## Student Learning Outcomes

It is expected that by the end of the course, the successful student will be able to:

1. Identify the value of inquiry as an instructional strategy.
2. Develop abilities to facilitate science learning through scientific inquiry.
3. Outline strategies for modifying content area lessons to accommodate English Language Learners (ELLs) according to guiding principles like those in the NGSS, the pertinent TEKS, and the Socio-Transformative-Constructivist (sTc) learning theory.
4. Identify and integrate quality Science, Technology, Engineering and Mathematics (STEM) curriculum materials (e.g., Engineering is Elementary [EiE]) into instructional activities relevant to elementary education learning settings.
5. Demonstrate and understand the implementation of different instructional strategies and teaching materials consistent with the applicable Texas Essential Knowledge and Skills (TEKS).
6. Develop a well-thought-out philosophy of science teaching.
7. Demonstrate proficiency in the use of the 5E Instructional Model as a tool for lesson planning that supports the teaching and learning of basic and integrated inquiry process skills.
8. Collaborate with peers in a scientific investigation to show a willingness to engage in science as a learner.
9. Collaborate with peers in our course in the analysis of effective and teaching methods for teaching elementary science.

## Assessment of Student Learning Outcomes

Assignment	Assessment of Learning Outcomes
1. In-class Quizzes	Learning outcomes: 1, 3, and 6
2. Lesson plan + STEM presentations	Learning outcomes: 2, 3, 4, 5, and 6
3. Online Threaded Discussions	Learning outcomes: 1, 4, 6, and 7
4. In-class Activities	Learning outcomes: 1, 2, 3, 4, 5, and 9
5. Science Education Modules	Learning outcomes: 1, 2, 3, 4, 5, 6, and 7

## Grading Criteria

The course will be assessed based on the following criteria:

	Points
1. Online Quizzes (3 @ 10 points each) (IA)	30
2. 5E Lesson (GA) - First draft for peer review (5 pts) - STEM activity delivery, includes PPT (20 pts) - Lesson peer-review (5 pts) - Final submission (70 pts)	100
3. Science Education Modules (IA) (40 points each)	120

4. Activities* (5 points each). <ul style="list-style-type: none"> <li>• Activity 1: My views about science education part I (IA)</li> <li>• Activity 2: Science vocabulary entry (IA)</li> <li>• Activity 3: Inquiry Investigation part I (GA)</li> <li>• Activity 4: Science Activity Analysis (IA)</li> <li>• Activity 5: Science Activity Analysis (IA)</li> <li>• Activity 6: Inquiry Investigation Part II (GA)</li> <li>• Activity 7: Textbook Analysis (IA)</li> <li>• Activity 8: My views about science education part II (IA)</li> <li>• Activity 9: Lesson delivery (GA)</li> <li>• Activity 10: Inquiry investigation part III (GA)</li> </ul>	50
5. Online Threaded Discussions (IA) (3 @ 5 pts each)	15
<b>Total Points</b>	<b>315</b>

IA: Individual Assignment; GA: Group Assignment

\*In the case of the 'in-class' activities, students must be present throughout the entire class meeting to earn the points.

### Grades

Overall grading will be A-F, points weighted by percentages. All work is expected to be clearly written (and word-processed), reflect thoughtful response to the assignment guidelines, and be of high quality.

A = 90-100%      C = 70-79.9%      E = Below 60%  
 B = 80-89.9%      D = 60-90%

**Description of Assignments:** Below you will find a description of each assignment for this course. Please do not hesitate to consult with me if you have any questions. Assignment instructions are also available in the Course Content section/Assignments folder of the course platform.

**1. Online Quizzes (IA):** Quizzes cover the assigned readings to date are due by the posted time on the deadline date (See course calendar). The format of the quizzes may include multiple choice and/or short-answer questions that you will need to answer completely with supporting evidence from the readings. Quizzes are also timed (**30 minutes**) so you should be sure to set yourself up in a quiet place to take this **in one attempt**. Be sure to **save your answers** after each response and finally submit the quiz when you have it completed.

*If you run into technical difficulties while completing and/or submitting your online quiz, you will have the opportunity to complete a new quiz in the instructor's office, in a paper-and-pencil format, and for the time you had left in your first attempt.*

**2. Lesson Plan (GA):** Three or four students work as a group to design a 5E lesson plan that addresses the applicable TEKS and the Engineering by Design Process (EDP). The components should be written clearly in the lesson plan: (a) title, grade, and source (b) learning objectives, (c) Links to TEKS, (d) the phases of the 5E Learning Cycle: Engage, Explore, Explain, Elaborate, and Evaluate, (e) references/bibliography, and (f) supportive documents (i.e., activity guide, hand-out). We will deliver this lesson plan to a group of elementary students.

The 5E lesson plan (single-spaced, 2-3 pages long only plus supportive documents [i.e., activity guide]) will be submitted through the BLACKBOARD platform, and will be peer reviewed. Your instructor will assign each group another group's lesson for review. Each student will be expected to complete this review and submit it through the Blackboard Assignments section and by the assigned due date.

#### Assignment Formatting Requirements

**All assignments will be submitted as double-spaced Word documents (except the lesson plan) or as a PPT\* (Lesson Merit only) and through the Assignments section of Blackboard.** It is your responsibility to make sure that your assignment file is consistent with the prescribed format. Blank documents/ assignments can be re-submitted for partial credit (75%).

\*PPT: PowerPoint Presentation

This lesson plan includes an STEM activity which will be delivered in class. The focus of this presentation is on the use of the Engineering by Design Process (EDP). Presenters will engage their peers in the classroom in the execution of the task. Each group is responsible for assembling the needed materials and handouts.

**3. Science Education Modules:** Modules will be posted on Friday in the Assessment section of Blackboard (See course calendar). They cover readings, class notes, in-class activities, individual and group projects. You need to plan ahead so that you can solve this test in one attempt. Each module highlights the main concepts addressed in class during the week—that is in the previous two class meetings. Modules consist of a discussion of ideas and principles from readings and class activities, and teaching and learning methodologies. At the end of each module, you find a set of questions intended to test your knowledge and understanding of the discussed concepts.

**4. Activities (IA & GA):** These are both individual and group activities that will take place in class, during the face-to-face class meetings, and online as part of the virtual class sessions. In each class we will engage in activities that illustrate exemplary science learning/teaching strategies, and/or exemplify main ideas in the assigned readings.

See each **in-class activity** highlighted in the course calendar.

**5. Online Threaded Discussions (IA):** There will be two Threaded Discussions (TDs) scheduled for two days when we do not meet in the classroom (see course calendar). Each contribution to each TD will be awarded 0, 2, 3, or 5 points based on the complexity and thoughtfulness of your comments. You are expected to participate in each of the two TDs.

*Do not post your responses to the discussion board as attachments! Please type directly or copy and paste the text into the discussion boards.*

## Academic Policies

### Assignment Submission

Your assignments are *expected to be submitted online (via Blackboard) using the assignment template* on the scheduled day and time; submit them according to the prescribed format (e.g., written report). Late work will not be accepted for full credit unless you have evidence of extenuating circumstances.

Unfortunately, sometimes less than excusable circumstances arise even for professionals in the field and you made need an extension. However, I will only agree to grade late work for the first week following a due date, deducting 25% off the total grade. No assignments will be accepted past one week late. Plan carefully to ensure you meet the deadlines. If you wait until the last minute, things that can go wrong often do. Your computer will crash, the internet connection stops working, etc. Please ask if you have questions or concerns about how to do any assignment in this course. You need to check your Blackboard email regularly for communications from your instructor. Once you submit your assignment *make sure it is posted*.

Assignments will be submitted in the Assignments area of the navigation menu, and will need to be posted as Word files or as a PowerPoint (PPT) only (***no rft. or Prezi formats, please***). When submitting a group assignment, your group will designate a member to be responsible for the submission of the project—this is part of the goals your group will set up in class. Please, include in each submission the names of the students [and their responsibilities] that participated in and contributed to the preparation of the group project. Assignments that are labeled “missing” by the Blackboard system **will not** be accepted without the instructor's prior written approval [email communication]. You will not be able to submit your assignments after the due date. It is your responsibility to inform your instructor ‘as soon as possible’ if you run into technical difficulties while submitting/posting your assignments on Blackboard. If this happens, you need to *send your assignment via email before the due date so that your assignment can be graded for full credit*.

**Attendance Policy:** Learning in this class is considered a communal endeavor as well as an individual

undertaking. Class attendance is crucial for a full understanding of course material, because many of the topics and content will be taught and communicated through class demonstrations, activities, and discussions. If you are absent from a class, contact your instructor or another student to find out what occurred during the class you were absent from. Tardies result from anytime between 5:15 and 5:30 pm. Two tardies (and/or leaving early [15 minutes]) will result in an unexcused absence.

- Your 1<sup>st</sup> absence is excused.
- Your 2<sup>nd</sup> absence will reduce your final grade 5 %.
- Every additional absence reduces your final grade in 10 percent points.

**UTEP Teacher Education Department Policy on Course Absences:** The UTEP Teacher Education Department considers missing two weeks of class excessive. The student may be dropped for lack of attendance. If you miss two weeks of class, contact your instructor immediately.

**Communicating Effectively Online:** When we talk face-to-face, we expect other people to observe certain rules of behavior. The same is true online. Here are a few pointers to help you communicate more effectively via e-mail and discussion boards:

- Clearly summarize the contents of your message in the subject line of your e-mail AND your discussion board postings.
- Avoid using all capital letters. USING ALL CAPS MAKES IT LOOK LIKE YOU'RE SHOUTING! IT'S ALSO MORE DIFFICULT TO READ.
- Avoid using sarcasm in your postings and e-mail messages. Sarcasm does not translate well in the online world. If you have a dry sense of humor, use smiles :) to defuse what could be constituted as an abrupt message (but don't over use them! :)).
- More information on Netiquette can be found at: [www.albion.com/netiquette](http://www.albion.com/netiquette)

### **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 (HOOP) 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.

### **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) <<mailto:eoaa@utep.edu>>.

### **Students with Disabilities Statement**

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).

The Disabled Student Services Office can also be reached in the following ways:

Web: <http://www.utep.edu/cass/>

Phone: (915) 747-5148

Fax: (915) 747-8712

### Course Schedule and/or Assignment Changes

The course instructor reserves the right to adjust the course syllabus or change assignments as needed. While every effort will be made to adhere to the calendar and the course outlines, there will undoubtedly be changes due to unexpected situations or pacing that may arise during the semester. Every attempt will be made for advance 'warning.' These modifications will be based on the specific needs of all the students in the course, but not to exceed difficulty or the due dates of the originally proposed assignment.

**Assign Reading Material:** Readings will be assigned and available via Blackboard in the Course Content Area/Course Readings. You will be responsible for reading these materials before class.

**Plagiarism:** Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper without giving credit to the source of that information or wording; it is also not acceptable. Do not submit work under your name that you did not do yourself. You may not submit work for this class that you did for another class. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy. Refer to <http://www.utep.edu/dos/acadintg.htm> for further information.

**Multiple Submissions:** When turning in assignments, students may not resubmit work done for other courses. No credit will be given for a resubmission of a project or paper given in another class.

**Incomplete Grades:** An incomplete may be given if a student provides evidence of a documented illness or family crisis that precludes successful completion of the course.

**Format and Submission:** All written assignments should be double space (*except lesson plans*), font size 12 with 1 inch margins and **submitted on Blackboard**. Formal written projects are to follow the American Psychology Association (APA) format. *Please ask if you have any questions about using the APA format, I will be happy to help!*

## Course Calendar

Week	Date	Topic	Assignments Due
1	June 12 F2F*	<ul style="list-style-type: none"> <li>• Introduction and overview</li> <li>• How students learn science?</li> <li>• Who is a scientist?</li> <li>• Basic and integrated inquiry skills: The popcorn activity</li> <li>• Examining student work</li> <li>• <b>Activity 1:</b> My Views about Science Education (I)</li> </ul>	<p>Read the syllabus, and make sure to fill out and submit the Student Profile form in the next class meeting.</p> <p><b>Read [in class]:</b></p> <ul style="list-style-type: none"> <li>• <i>Bell, Smetana and Binns: Simplifying inquiry instruction</i></li> <li>• Scribner-MacLean: <i>More than just guessing</i></li> </ul> <p><b>Take online [practice] quiz (in-class)</b></p>
	June 14 F2F	<ul style="list-style-type: none"> <li>• The Engineering Design Process</li> <li>• The 5E Model: Lesson plan outline</li> <li>• <b>Activity 2:</b> Science Vocabulary Entry</li> <li>• Interactive word walls</li> <li>• <b>Activity 3:</b> Inquiry Investigation Part I</li> </ul>	<p><b>Read before class:</b></p> <ul style="list-style-type: none"> <li>• <i>Bybee: The 5E Model</i></li> <li>• <i>Crowther et al: Academic vocabulary instruction</i></li> </ul> <p><b>Submit today your student profile form</b></p> <p><b>Take Online quiz #1</b> before class (Based on the readings from this class meeting)</p> <p><b>Module 1: Due June 17 by midnight</b></p>
2	June 19 F2F	<ul style="list-style-type: none"> <li>• Observing, collecting data, predicting, and constructing graphs (Outdoor activity)</li> <li>• Bird survey on campus</li> <li>• <b>Activity 4:</b> Science Activity Analysis (Due at the end of class)</li> <li>• The 5E Model: Lesson plan outline</li> </ul>	<p><b>Read before class:</b></p> <ul style="list-style-type: none"> <li>• <i>Porter, Yokoi &amp; Yee: The art and science of notebooks</i></li> <li>• <i>Finson: Inference vs. Observation</i></li> </ul> <p><b>Take online quiz #2</b> before class (Based on the readings from this class meeting)</p>
	June 21 Online	<ul style="list-style-type: none"> <li>• Measuring with toys</li> <li>• The Nature of science (NOS)</li> <li>• Scientific misconceptions</li> <li>• <b>Activity 5:</b> Science Activity Analysis (Submit it through the Assignments section)</li> </ul> <p><b>Threaded Discussion 1</b></p>	<p><b>Read</b></p> <ul style="list-style-type: none"> <li>• <i>Crowther, Lederman and Lederman: Understanding the true meaning of the nature of science</i></li> </ul> <p><b>Take online quiz # 3</b> before June 21<sup>st</sup> by 5:00 pm. (Based on the readings from this class meeting)</p> <p><b>Module 2: Due June 24 by midnight</b></p>

3	June 26 F2F	<p><b>STEM activities and merit presentations</b></p> <ul style="list-style-type: none"> <li>• <b>Activity 6:</b> Inquiry Investigation Part II</li> </ul>	<p><b>Submit group's 5E lesson draft</b></p>
	June 28 Online	<p><b>Threaded Discussion 2</b></p> <ul style="list-style-type: none"> <li>• <b>Activity 7:</b> Textbook Analysis</li> <li>• Writing in the science classroom</li> <li>• Science and storytelling</li> </ul>	<p><b>Read</b></p> <ul style="list-style-type: none"> <li>• <i>Musakata: Lessons from the Little Prince</i></li> </ul> <p><b>Module 3 : Due July 1 by midnight</b></p>
4	July 3 Online	<ul style="list-style-type: none"> <li>• <b>Activity 8:</b> My Views about Science Education (II)</li> </ul> <p><b>Threaded Discussion 3</b></p>	<p><b>Read</b></p> <ul style="list-style-type: none"> <li>• <i>Moscovici and Holmlund Nelson: Activitymania</i></li> </ul> <p><b>Submit your revision of the 5E lesson</b></p>
	July 5 F2F	<ul style="list-style-type: none"> <li>• <b>Activity 9:</b> Lesson Delivery</li> <li>• <b>Activity 10:</b> Inquiry Investigation Part III</li> <li>• Who is a scientist? II</li> </ul>	<p><b>Submit 5E Lesson (one per group)</b></p>

\*F2F: Face-to-Face class meeting

## References

- Bell, R. L., Smetana, L., & Binns, I. (2005). Simplifying inquiry instruction. *The Science Teacher*, 72(7), 30.
- Bybee, R. W. (2014). The 5E instructional model: Personal reflections and contemporary implications. *Science & Children*, 51(8), 10-13.
- Crowther, D. T., Lederman, N. G., & Lederman, J. S. (2005). Understanding the true meaning of the nature of science. *Science & Children*, 43(2), 50-52.
- Crowther, D. T., Tibbs, E., Wallstrum, R., Storke, E., & Leonis, B. (2011). Academic vocabulary instruction within inquiry science: The Blended/Tiered approach. *AccELLerate!* 3(4), 17-20.
- Finson, K. (2010). Inference or observation? *Science & Children*, 48(2), 44-47
- Llewellyn, D. (2007). Making the most of concept maps. *Science Scope*, 74-77.
- Michaels, S., Shouse, A. & Schweingruber, H. (2008). Ready, Set, Science! Putting Research to Work in K-8 Science Classrooms. National Academy Press.
- Moscovici, H., & Nelson, T. H. (1998). Shifting from activitymania to inquiry. *Science and Children*, 35(4), 14.
- Munakata, M. (2005). Lessons from the Little Prince. *Science & Children*, 40-42.
- Porter, K., Yokoi, C., & Yee, B. (2011). The art and science of notebooks: An interdisciplinary approach to teaching students to record accurately. *Science & Children*, 42-46.
- Scribner-MacLean, M. (2012). More than just guessing: The difference between prediction and hypothesis. *Science Scope*, 37-40.

### [Some] Trade Books Suitable for Science Lessons

- Beaty, A. (2007). Iggy Peck, Architect. Abraham Books for Young Readers.
- Beaty, A. (2013). Rosie Revere, Engineer. Harry N. Abrahams.
- Beaty, A. (2016). Ada Twist, Scientist. Harry N. Abrahams
- Cowley, J. (2002). *Big moon tortilla*. Honesdale, PA: Boyds Mills Press.

- Davies, J. (2004). *The boy who drew birds: A story of John James Audubon*. Boston: Houghton Mifflin
- DePaola, T. (1978). *The popcorn book*. Holiday House.
- De St Exupery, A. (1943). *The little prince*. Reynal & Hitchcock.
- Galdone, P., & Galdone, J. C. (1984). *The three little pigs*. Boston: Houghton Mifflin.
- Gibbons, G. (1993). *From seed to plant*. Holiday House.
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**BED/ELED 4311: Teaching Science in the Dual Language/Elementary School - Summer 2018  
Student Profile Form**

Name: \_\_\_\_\_

Objections to syllabus or what other content do you think this course should cover and why?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Any additional comments you may have (e.g. what you hope to do professionally, health problems, experiences at UTEP) that your instructor should be informed.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If you experience any difficulties with the course—*please do not wait*, contact the instructor as soon as possible—email, phone, or in-person meeting.

***I read and fully understand the requirements and course policies as stated in this course syllabus.***

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

**Assignment Rubrics**

This Threaded Discussion (TD) is intended to give you an opportunity to interact with your peers around some issues addressed in class. In order to receive full credit, you will: (1) write and post an individual response addressing the discussion prompt posted by the instructor, and (2) reply to at least one of your fellow classmates' entry.

**Threaded Discussion Rubric**

<b>Inadequate Participation (0)</b>		<b>Simple Participation (3)</b>	<b>Complex Participation (5)</b>
Didn't participate at all	<ul style="list-style-type: none"> <li>- Single message posting</li> <li>- Repeats others' comments</li> <li>- Simple agreement statements</li> <li>- Unrelated to topic</li> <li>- Poor spelling and grammar</li> </ul>	<ul style="list-style-type: none"> <li>- Refers to posts and thread</li> <li>- Adds own opinion</li> <li>- Elaborates some insight</li> <li>- Mostly related to topic</li> <li>- Prompts further discussion</li> <li>- Few spelling or grammar errors</li> </ul>	<ul style="list-style-type: none"> <li>- Refers to posts and thread</li> <li>- Multiple message postings (at least 2: your individual response and one postings with feedback)</li> <li>- Cites at least one assigned reading</li> <li>- Clear and concise</li> <li>- Develops an argument</li> <li>- Critiques other posts</li> <li>- Answers questions</li> <li>- Defends position</li> </ul>

## 5E Lesson Plan

	5 pts	4 pts	3-1 pt.
<i>Lesson source &amp; title</i>	<ul style="list-style-type: none"> <li>-The lesson indicates whether the content is adapted from an existing curriculum, from a classroom teacher, or information source. Credit should be given to the original author/s (Cite!)</li> <li>-The title is intriguing, succinct and represents the lesson plan</li> </ul>	<ul style="list-style-type: none"> <li>-The lesson shows some adaptations and identifies the source but fails to cite the author/s.</li> <li>- The title is intriguing and represents the lesson plan</li> </ul>	<ul style="list-style-type: none"> <li>-The lesson does not identify the source— please give credit to the authors; the lesson does not cite the author/s [if used from an existing source].</li> <li>The title is intriguing but does not represent the lesson plan</li> </ul>
	10-7 pts	6-4 pts	3-1 pts
<i>Learning objectives</i>	<ul style="list-style-type: none"> <li>-Concise description of what learners are expected and able to do by the end of the lesson</li> <li>- Objective statements include a variety of actions verbs (lower and higher order) that address different cognitive levels.</li> <li>- There is evidence in the evaluation section that students' learning is linked to the concepts and skills addressed in the learning objectives.</li> <li>-Objective statements are clear enough that a substitute teacher would not have difficulties delivering the lesson.</li> <li>- Includes at least two objectives from each category (content and language).</li> </ul>	<ul style="list-style-type: none"> <li>- Descriptions of what learners are expected to learn are unclear</li> <li>-Most action verbs in the objective statements are from either lower or higher order thinking levels that do not address different cognitive levels.</li> <li>-Unclear connections with the evaluation section.</li> <li>-Some clarifications are needed; a substitute teacher may have difficulties delivering this lesson.</li> <li>- Includes learning objectives but they are not identified; the action verbs are vague (e.g., to study)</li> </ul>	<ul style="list-style-type: none"> <li>-The description of the learning objectives is vague.</li> <li>-Action verbs in the objective statements do not support meaningful learning.</li> <li>-The lesson needs a great deal of improvement; a substitute teacher will have difficulties delivering this lesson.</li> <li>-Includes learning objectives that do not provide students with opportunities to demonstrate how much and how well they mastered the main concepts of the lesson.</li> </ul>
	5 pts	4 pts	1 pt.
<i>TEKS alignment</i>	<ul style="list-style-type: none"> <li>-Lists pertinent standards for the target grade level.</li> <li>-There is evidence (i.e., in the evaluation section) that student's learning is linked to the listed standards.</li> </ul>	<ul style="list-style-type: none"> <li>-Listed standards do not fully relate to the lesson.</li> <li>-Partial evidence (i.e., in the evaluation section) that student's learning is linked to the listed standards.</li> </ul>	<ul style="list-style-type: none"> <li>-Lesson is loosely connected to the standards.</li> </ul>
	10 - 7 pts	6-4 pts	3-1 pts
<i>Vocabulary Instruction</i>	<ul style="list-style-type: none"> <li>-In this section, the lesson identifies one vocabulary instruction format (i.e., Tiered instruction, frontloading).</li> <li>-Lesson describes the use of the target vocabulary instruction format. The vocabulary instruction format is also addressed in the body of the lesson (5Es).</li> <li>-Vocabulary of the lesson is identified/listed (i.e., Tier 1, Tier 2, and Tier 3 words).</li> <li>- Lesson includes at least one assessment strategy focused exclusively on the scientific terminology students encountered in the lesson.</li> </ul>	<ul style="list-style-type: none"> <li>-In this section, the lesson identifies one vocabulary instruction format (i.e., Tiered instruction, frontloading).</li> <li>-Lesson describes the use of the target vocabulary instruction format but it is not addressed in the body of the lesson (5Es).</li> <li>-Vocabulary of the lesson is vaguely identified/listed (i.e., Tier 1, Tier 2, and Tier 3 words).</li> <li>- The assessment strategy identified in the body of the lesson is not clearly focused on the scientific terminology students encountered in the lesson.</li> </ul>	<ul style="list-style-type: none"> <li>- Lesson does not identify one vocabulary instruction format (i.e., Tiered instruction, frontloading).</li> <li>-Lesson does not describe the use of the target vocabulary instruction format.</li> <li>-The lesson does not address vocabulary instruction in the 5E section.</li> <li>-Vocabulary list is missing major scientific concepts.</li> <li>- The lesson does not include an assessment strategy focused on the scientific terminology students encountered in the lesson.</li> </ul>

	30-20 pts (25)	19-10 pts	9-1 pts
<i>Lesson Body</i>	<p>-Lesson clearly describes what the teacher and the student will do in each stage of the 5E cycle.</p> <p><b>-Engagement</b> (hook/attention grabber): describes one task that creates interest and leads students into exploration.</p> <p><b>-Exploration:</b> describes a STEM-based activity/strategy that encourages students to work together in the solution to the posed problem or challenge; students imagine, plan, test, and improve their designs; students formulate predictions and record observations and most importantly use the Engineering Design process (EDP).</p> <p><b>-Explanation:</b> includes at least 4 questions the teacher would use to lead a whole class discussion; teacher introduces new terms; [formally] provides definitions; uses students' experiences as basis for explanations; [teacher] asks students for evidence/justification.</p> <p><b>-Elaboration:</b> describes an extension [new] activity that is hands-on/minds-on; there is evidence that students use this activity to apply concepts and skills.</p> <p><b>-Evaluation:</b> includes both formative and summative assessment formats; assessments address the concept and skills stated in the learning objectives.</p>	<p>-General description of what the teacher and the student will do in each stage of the 5E cycle.</p> <p><b>-Engagement</b> (hook/attention grabber): unclear description of a strategy that creates interest. Engagement does not clearly connect with the exploration phase.</p> <p><b>-Exploration:</b> describes an activity that although builds on the EDP process seems unrelated to the previous phase; although students are encouraged to work together they there is no evidence that the students will imagine, plan, test, and improve a design; students practice a few inquiry skills only (e.g., test predictions).</p> <p><b>-Explanation:</b> includes at least 2-3 questions the teacher would use to lead a whole class discussion; teacher introduces some new terms; [formally] provides some definitions; use experiences unrelated to students' own work as basis for explanations; [teacher] fails to ask students for evidence/justification.</p> <p><b>-Elaboration:</b> describes a known activity that is hands-on/minds-on; there is little evidence that students use this activity to apply concepts and skills.</p> <p><b>-Evaluation:</b> includes both formative and summative assessment formats; assessments partially address the concept and skills stated in the learning objectives.</p>	<p>-Vague description of what the teacher and the student will do in each stage of the 5E cycle.</p> <p><b>-Engagement</b> (missing hook/attention grabber): activity or strategy does not create interest in the topic of the lesson.</p> <p><b>-Exploration:</b> students are not encouraged to work together; students do not have the opportunity to practice the EDP process; the activity seems focused on producing an artifact; no inquiry skills (e.g., test and form new predictions, record observations) are practiced.</p> <p><b>-Explanation:</b> does not include questions the teacher would use to lead a whole class discussion; teacher does not introduce new terms; definitions are not provided; students' previous experiences are not used as basis for explanations; students are not questioned for evidence/justification.</p> <p><b>-Elaboration:</b> a new hands/minds-on activity is not described; there is no evidence that students use this activity to apply concepts and skills.</p> <p><b>-Evaluation:</b> includes a vague description of the assessment; does not identify the assessment type.</p>
	5 pts	3 pts	1 pt.
<i>References and Supporting Documents</i>	<p>-Includes text books and websites references used in the lesson.</p> <p>-Supporting documents are included at the end of the lesson as appendixes.</p>	<p>-Includes some text books and websites references used in the lesson.</p> <p>-Some supporting documents are included at the end of the lesson as appendixes.</p>	-Not included
	5 pts	3 pts	1 pt.
<i>Mechanics of English and Format</i>	<p>-Appropriate expression of concepts, varied and accurate vocabulary, no errors occur with regards to grammar, conventions and spelling.</p> <p>-Lesson plans are consistent in format (e.g., double space, font size 12 with 1 inch margins, cited references when included follow the APA format).</p> <p>-Lesson template is used.</p> <p>-Lesson is 3-4 pages long (not including supporting documents).</p>	<p>-Clear expression and vocabulary, some mechanical errors exist but not to get in the way of understanding.</p> <p>-Lesson plan has some formatting problems.</p> <p>-Lesson template is not used</p> <p>-Lesson is 5-8 pages long (not including supporting documents)</p>	<p>-Some mechanical errors exist but not to get in the way of understanding.</p> <p>-Many errors with regards to grammar, spelling, and conventions.</p> <p>-There is no obvious formatting structure</p> <p>-Lesson template is not used</p> <p>-Lesson is &gt;9 pages long (not including supporting documents)</p>

