

SIED 5325: Inquiry Science Education in Bilingual Settings (CRN 27341) Course Syllabus

Contact Information

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Please email me within the Blackboard email system to set up an appointment or to arrange a phone conversation.

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.

Course Description

This course provides a review of pedagogical content knowledge (PCK) methodologies as implemented in K-12 learning settings with emphasis on English Language Learners (ELLs) in school classrooms. This course also offers a review of (1) the historical aspects of scientific inquiry as an instructional methodology in K-12 learning settings, and of (2) science education from a multicultural viewpoint aimed to support both content and language development in bilingual school communities. Students will learn to develop curriculum using the Texas Essential Knowledge and Skills (TEKS), the instructional models such as sheltered instruction, and the 5E Instructional Model. In this course, students will participate as a teacher, researcher, and student while they reflect on how a student-centered learning setting can transform their classroom activities benefiting ELLs. The course is organized around lecture notes, video-lessons, threaded discussions, readings, written projects, and use of sheltered instruction. Grades are derived from participation and a mastery of basic concepts as indicated by group and individual projects, and student reading and writing exercises. The class includes research-based principles in science learning and second language acquisition.

Course Procedures

This class is a graduate class in science education, and it is expected that students manage their time and complete all the required classroom material. The class will be facilitated in Blackboard through the University of Texas at El Paso and can be accessed through the My UTEP 3.0 Web Site (<http://my.utep.edu>) and will be conducted as an online class. All class interactions will be done online and all materials for the semester will be delivered and received on Blackboard. Be sure to read all the lecture note materials thoroughly and to continually consult the course schedule in order to keep up on all information associated with this online class.

There will be weekly class notes that will be posted no later than Monday morning of each week throughout the semester. The weekly class notes will appear as a link in the Course Content section of our class in Blackboard. It is the responsibility of each student to follow this material and integrate

it into your individual class material assignments.

You will need to examine and understand the environment of this class in Blackboard and the location of all class material. It is recommended that you log in with great regularity in Blackboard to look for announcements, lecture notes, discussion posts, description of course assignments, anticipation guides, email tools, and spaces for collaboration.

Required Textbook

Carr, J., Sexton, U. & Lagunoff, R. (2007). Making science accessible to English learners. San Francisco: WestEd.

Other required readings will be available in Blackboard in PDF format. The Adobe Acrobat reader is free and may be obtained at: www.adobe.com. These readings are posted in the 'Additional Readings' folder in the Course Content area.

Suggested Online Sources

- Center for Applied Linguistics: <http://www.cal.org/>
- Institute for Inquiry: <http://www.exploratorium.edu/ifi/>
- Jim Cummins' website: <http://iteachilearn.org/cummins/>
- National Association of Bilingual Education (NABE) Journal of Research and Practice: <http://www.uc.edu/njrp>
- National Clearinghouse for English Language Acquisition and Language Instruction and Educational Programs: <http://www.ncela.gwu.edu/>
- Stephen Krashen's website: <http://sdrashen.com/>
- The New Generation Science Standards (NGSS)
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.

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

Consider the virtual interactions in this class as a meeting with colleagues in your field and a great opportunity to exchange ideas. Being well prepared and participating in class projects and discussions are key parts of professional behavior. Make a commitment to:

1. *Be prepared.* Interact each week and complete your assignments in a timely manner.
2. *Check the course platform regularly.* Find each week's class notes posted in the course content area (*Lecture Notes folder*)
3. *Participate.* In this learning environment we need to 'hear your voice.' We especially need to hear your personal comments, your reactions to what you have read, plus your own experiences. All this input adds to the shared learning, and the sense of community in our course.

4. *Inform* your instructor ahead of time (and teammates if necessary) when you cannot participate in class or group projects, or you run into difficulties completing your tasks.
5. *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. Any derogatory or inappropriate comments are unacceptable and subject to the same disciplinary action that they would receive if they have occurred in the physical classroom. If you have concerns about something that has been said, please let your instructor know immediately.
6. *Provide constructive feedback* that helps your teammates and the instructor improve their performance and appreciate it when they provide you with the same.
7. Make sure that your answers to course assignments will be your own work.
8. *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. Instructor's responses to your questions will be made available to the whole class via FAQ postings you will find in the Course Content area.

Course Goals

Successful completion of this class will assist graduate students in meeting the following goals:

1. To engage in class discussions and assignments that require the integration of skills in content development and content delivery in ELLs'/EB's classrooms.
2. To apply knowledge of, and guides students to understand the processes of scientific inquiry and the role of inquiry in the teaching of science in culturally and linguistically diverse classrooms.
3. To identify and integrate ELLs' personal experiences and family backgrounds, relevant to science with academic content.
4. To implement a variety of instructional strategies and resources to meet the diverse needs of all learners in science classrooms.
5. To identify and articulate standard-based science instructional strategies by making research-based decisions, exhibiting leadership, and consulting with colleagues in your field.
6. To analyze and synthesize an understanding of course material in both classroom and online environments through multiple classroom interaction strategies.

Student Learning Outcomes

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

1. Discuss differences in first and second language acquisition.
2. Identify principles of second language acquisition in classroom settings.
3. Outline strategies for modifying science lessons to accommodate English language learners.
4. Demonstrate proficiency in the use of the 5E Instructional Model as a resource for lesson planning.
5. Apply knowledge of, and guide students to understand and practice the processes of scientific inquiry and the role of inquiry in science learning and teaching.
6. Become proficient in the curriculum alignment process.
7. Address the TEKS for appropriate grade level.

8. Use the discourse of our discipline (science education) in a writing project to address issues that are of interest to the teaching and learning of science with ELLs.

Assessment of Student Learning Outcomes

| Assignment | Assessment of learning outcomes |
|---------------------------------------|---|
| 1. Growth Essays | Learning outcomes: 1, 2, 7 and 8. |
| 2. 5E Lesson Plan | Learning outcomes: 1, 2, 4, 5, 6, 7, and 8. |
| 3. Points of Most Significance (POMS) | Learning outcomes: 1, 2, and 7, and 8. |
| 4. Threaded Discussions | Learning outcomes: 1, 2, 3, and 7, and 8. |

Outline Activities – Due Dates

| Assignment | Date Open | Due Date—Closed |
|---|--|--|
| <i>Growth Essays (IA)</i> - Growth essay 1 - Annotated bibliography - Growth essay 2 | Feb. 12 at 8:00 AM Mar. 18 at 8:00 AM May 1 at 8:00 AM | Feb. 18 at 11:55 PM Mar. 24 at 11:55 PM May 7 at 5:00 PM |
| <i>5E Science Lesson Plan (IA or GA)</i> - Lesson Outline - 5E lesson submission for peer review - Review of 5E Stem Lesson - Lesson final submission | Feb. 19 at 8:00 AM April 1 at 8:00 AM Apr. 15 at 8:00 AM Apr. 29 at 8:00 AM | Feb. 25 at 11:55 PM April 7 at 11:55 PM Apr. 21 at 11:55 PM May 10 5:00 PM |
| <i>Points of Most Significance (POMS) (IA)</i> <i>(You are expected to complete 4 submissions)</i> POMS introduction..... POMS sample 1 (<i>no points earned</i>)..... POMS sample 2 (<i>no points earned</i>) POMS 1..... POMS 2 POMS 3 POMS 4 POMS 5 | Jan. 16 at 8:00 AM Jan. 22 at 8:00 AM Jan. 29 at 8:00 AM Feb. 5 at 8:00 AM Feb. 12 at 8:00 AM Feb. 19 at 8:00 AM Feb. 26 at 8:00 AM Mar. 4 at 8:00 AM | Jan. 21 at 11:55 PM Jan. 28 at 11:55 PM Feb. 4 at 11:55 PM Feb. 11 at 11:55 PM Feb. 18 at 11:55 PM Feb. 25 at 11:55 PM Mar. 3 at 11:55 PM Mar. 10 at 11:55 PM |
| <i>Threaded Discussion (TD) (IA)</i> Threaded Discussion 1 Threaded Discussion 2 Threaded Discussion 3 | Mar. 4 at 8:00 AM Mar. 25 at 8:00 AM Apr. 8 at 8:00 AM | Mar. 10 at 11:55 PM Mar. 31 at 11:55 PM Apr. 14 at 11:55 PM |

GA: group assignment

IA: Individual assignment

We will use Blackboard email to clarify readings and questions regarding assignments. Please make your questions and clarification requests available for all students and I will share answers with all via Help Board 'Frequently Asked Questions (FAQ).'

Guidelines

- **Dates Due – Open:** Means that a discussion or written assignment link is available.
- **Dates Due – Closed:** Means that a discussion or written assignment link is closed and no longer available.
- **It is important to pay attention to all due dates and to manage your time and meet the requirements of this online graduate class as outlined in the course syllabus.**

Grading Criteria

The course will be assessed based on the following criteria:

| Assignment | Total Points |
|---|-------------------|
| <i>Growth Essays and Annotated Bibliography (IA)</i> -Essay 1 (20 points) -Annotated Bibliography (20 points) -Essay 2 (60 points) | 100 points |
| <i>5E Science Lesson (IA/GA)</i> -Lesson Outline (10 points) - Final submission (40 points) | 50 points |
| <i>POMS (IA)</i> . You are required to submit 4 POMS* | 20 points |
| <i>Threaded Discussions (IA)</i> | 15 points |
| Total | 185 points |

**This score depends on the POMS type you use in your submissions. For instance, perfect scores on four type III POMS submissions will result in 20 points (Type I= 3 pts; Type II= 4 pts; Type III= 5 pts). In case you participate in the five submissions; your instructor will use the best four POMS scores in the calculation of your grade for this assignment.*

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%

B = 80-89.9%

C = 70-79.9%

D = 60-69.9%

F = BELOW 60%

Description of Assignments (See assignment rubrics at the end of the syllabus and also in the Rubrics Folder in the Course Content area of Blackboard)

Growth Essays: In this assignment you are required to demonstrate the ability to:

- Use the discourse of our discipline (*science education*) and communicate that field's subject matter to academic and/or professional audiences.
- Make effective use of multiple drafts, of revision and editing, of computer technology, of peer and instructor comments, and of collaboration in the achievement of writing that shows understanding of written standards in a discipline and/or interdisciplinary field.
- Address issues that are of interest to you in the teaching and learning of science with ELLs and complete a substantial writing project that requires appropriate research skills.

- Observe the conventions of spelling, grammar, structure, punctuation, and documentation expected in disciplinary, interdisciplinary, and/or professional contexts.

Growth Essay 1: Impressionist Tale

This is a 1-page long (double-spaced) essay that includes two paragraphs: a science learning episode and a reflection. Impressionist Tales (van Maanen, 1988; Bryan & Tippins, 2005) portray highly personal perspectives of a special moment in time. They are written with the intention of (a) drawing the reader into the image—to make the reader see, hear, smell, feel, and taste what the storyteller describes; they also (b) use evocative language that reveals the writer’s deepest feeling about the topic. Impressionist Tales are similar to impressionist paintings (e.g., *Starry night*) which are set out to capture a scene in a special instant or moment of time...*what the painter sees is what the viewer sees*. Impressionist painters (Monet, Van Gogh, and Renoir) attempted to evoke a participatory sense in the viewer by painting every day, common, more familiar scenes.

- Paragraph 1. Think back of your elementary, high school, or college days and write one impressionist tale/paragraph on a science learning episode.
- The second paragraph will present your brief reflection on the emotions you experienced as a learner on that occasion. It is argued that learning science is an emotional practice. In this paragraph you answer the questions “*What emotions (positive/negative) did you experience in the event described above, and how did those emotions impact your engagement in science learning throughout your schooling career?*”

The first goal is for you to take time and reflect on your science learning experiences using a significant learning episode from your elementary, secondary, or tertiary education in science. *The second goal* deals with the concept of Critical Emotional Pedagogy (CEP). As teachers, we need to become aware of and understand not only our students’ (including ELLs) social and emotional experiences while engaged in science lessons, but also our own. CEP is defined as the implementation of “strategies for evoking and responding to the variety of emotions students may display as a result of critically engaging with specific subject matter topics” (Rodriguez, 2017, p. 265). By learning our own history, hopefully we can become more conscious of those beliefs and attitudes.

Growth Essay 2: My Current Views about Teaching and Learning Science in English

This is an 8-page (double-spaced, not including References) essay based on (a) your initial meeting with your student/s (ELL/s), and (b) the delivery of the lesson activity. This essay:

- *States* your current views about science education (the teaching and learning of science) in linguistically diverse settings, and the impact of those views on your lesson design and delivery.
- *Briefly addresses* the learning experience described in essay 1.
- *Describes* the science/education and second language acquisition concepts you practiced in the initial meeting with your ELL/ELLs and while delivering the lesson activity.
- *Shows* what you think ELLs need in terms of linguistic assistance in the science classroom.
- *Lists* and discusses your lesson plan decisions based on the initial meeting with your student/s (ELL).
- *Uses* at least five relevant citations (from your annotated bibliography) in the discussion of those decisions. These citations should deal with the target topic.
- *Presents* your reflection on the teaching experience with your ELL/ELLs.

Samples of these essays will be available in the Course Content area of Blackboard.

Annotated Bibliography: The bibliography will be integrated into your Growth Essay 2 and should contain an entry for each document you have found useful for your essay. This submission should include at least five entries. The entry will consist of two parts:

1. A citation in APA Style for the document.
2. An annotation consisting of a brief (~100 word) descriptive and evaluative paragraph.

The purpose of the annotation is to:

- A. Summarize the findings or key points of the document.
- B. Evaluate the document. The evaluation might include, but is not limited to, a discussion of these points:
 - *Date*—is the work current? If not, how does the age of the document impact the relevance, accuracy, or scope of the information contained in the document?
 - *Contribution*—explain how this work illuminates your bibliography topic. Has it changed how you think about your project?

The writing assignment must follow the APA style format. APA resources are available online (see <http://www.apastyle.org/faqs.html>) as are tools to aid in creating bibliographies (See <http://citationmachine.net/>). If you are already familiar with the 5th edition, visit the following website for a summary of changes in the 6th edition. <http://www.apastyle.org/manual/whats-new.aspx>

The essays submitted in class must pass the expected level of originality and will be checked using the www.turnitin.com service.

5E Lesson Plan: The 5E lesson assignment (individual or student pairs) should be appropriate for the classroom in which you teach or would like to teach. As part of this assignment, you will interact with a group of ELLs. This course project consists of: (1) A lesson outline, (2) a peer-review of a lesson plan assigned by the instructor, and (3) the improvement of your own lesson based on the feedback received from reviewers. Your lesson plan should identify a language proficiency level.

Points of Most Significance (POMS): Adapted from McComas (2002), POMS submissions are based on *[only] one* assigned reading from each week and represent what you think are the most important points made by the author/s of a given paper. This strategy will help you get the most out of the assigned readings and be ready to contribute to class discussions and writing assignments. Each POMS will be based on (1) a single reading and (2) on one POMS type (Summary, Synthesis or Application). Note that you are expected to submit four POMS statements throughout the semester. If you decide to participate in each of the five opportunities, your instructor will use the best four scores in the calculation of your grade for this assignment.

There are three POMS types, each with its unique point value.

- *I- Summary:* Reflects major idea(s) of a paper, or set of papers, within the current reading

topic (3 pts).

- *II-Synthesis*: States how you think the major idea(s) of a current reading or set of readings relate to the major idea(s) discussed in previous readings or class meetings (4 pts).
- *III-Application*: States a major implication for science teaching and learning in linguistically diverse classrooms (*not* directly provided by the author) that you draw from a given reading and discuss the means by which the implication can be put into practice (5 points).

POMS' Rules

Rule 1: Each individual POMS statement is to be no more than 55 words long.

Rule 2: For each POMS, indicate the type (I: Summary, II: Synthesis or III: Application) you intended to write.

Rule 3: Include in the POMS the title of the reading and its author/s. (This information will not be counted for the 55 words maximum).

Rule 4: POMS should be submitted by the assigned week (no later than Sunday at midnight) on the course platform only (Blackboard Assignment section). Include your name and the reading related to the POMS. Please contact me *right away* if you have problems submitting your POMS on Blackboard.

Rule 5: ALL POMS (except sample 1) *must* include a reference to AT LEAST ONE of the readings from previous weeks that support or refute a position with which you would like to draw comparisons or conclusions.

Rule 6: Four points will be lost with each non-submitted POMS. You are expected to submit four.

We will practice writing POMS during weeks 2 and 3 (See course schedule). These submissions [POMS samples] will not be graded but you will receive feedback. They are submitted for practice purposes only.

Here is an example of a POMS submission:

| | Week 4 Type II | Week 5 Type II | Week 6 Type III | Week 7 Type II | Week 9 Type III | Total Points |
|---------------|-------------------|-------------------|--------------------|-------------------|--------------------|--------------|
| Points earned | 3.0/4.0 pts | 3.0/4.0 | 4.0/5.0 | 2.0/4.0 | 4.5/5.0 | 14.5/18 |

Best four scores

Threaded Discussion on Blackboard: There will be three Threaded Discussion (TD) prompts available (see course calendar), each posted on Monday morning by 7:00 AM and open until Sunday at 11:55 PM. Each contribution will be awarded 0, 2, 3, or 5 points based on the complexity and thoughtfulness of your comments. For example, 3 excellent participations at 5 points each can satisfy the entire 15 total points.

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

Attendance and Participation: Attendance is taken by monitoring your work and participation online. The instructor reserves the right to drop students from the course who have not participated during two weeks of classes.

Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussion with your peers on the discussion boards/Threaded Discussions (TDs) (grading rubric provided in the “grading information” area of each TD)
- Other activities as indicated in the weekly modules

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

Course Drop Policy: According to UTEP Catalog, “At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of “W” will be assigned before the course drop deadline and a grade of “F” after the course drop deadline.” See Policies and Regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

Assignment Submission: Your assignments are due 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. Assignments not turned in will receive a grade of zero. I will only agree to grade late work for the first week following the due date, and deduct 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. Create your time management plan and stick to it, so you can get everything done on time.

Make-up Work: Make-up work will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

Assigned Reading Materials: Readings will be assigned for each week. You will be responsible for reading and understanding these materials.

Scholastic Integrity: Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

Some of your course work and assessments may be submitted to SafeAssign, a plagiarism detecting software. SafeAssign is used to review assignment submissions for originality and will help you learn how to properly attribute sources rather than paraphrase.

Incomplete Grade: Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

Accommodations Policy: The University is committed to providing reasonable accommodations to students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

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.

Course Communication:

Because this is an online class, we won't see each other in the ways you may be accustomed to: during class time, small group meetings, and office hours. However, there are a number of ways we can keep the communication channels open:

- **Office Hours:** We will not be able to meet on campus, but I will still have office hours for your questions and comments about the course. My virtual office hours will be held on Wednesday from 6:00-7:30 PM (Zoom Link in course navigation menu).
- **Email:** UTEP [inside Blackboard] e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24-48 hours of receipt. When e-mailing me, be sure to email from your UTEP student account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.
- **Frequently Asked Questions (FAQs):** If you have a question that you believe other students may also have, please send it by email. I will share my response with the whole class in the FAQs section in the navigation menu; I will keep your name confidential in my response.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

Netiquette:

As we know, sometimes communication online can be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and

immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.

Guidance on Artificial Intelligence (AI): Use of AI technologies or automated tools, particularly generative AI such as [ChatGPT](#) or [DALL-E](#), is **not allowed** for assignments in this class. Each student is expected to use critical and creative thinking skills to complete tasks and not rely on computer-generated ideas. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

Using AI for brainstorming with instructor's authorization: Some AI technologies or automated tools, particularly generative AI such as [ChatGPT](#) or [DALL-E](#), can be beneficial during the early brainstorming stages of an activity, and you are welcome to explore them for that purpose. However, keep in mind that AI-generated ideas are not your own and may hinder your ability to think critically and creatively about a problem. It is also important to remember that these technologies often "hallucinate" or produce materials and information that are inaccurate or incomplete—even providing false citations for use.

That said, you are not allowed to submit any AI-generated work in this course as your own. If you use any information or materials created by AI technology, you are required to cite it like you would any other source. Consider how this will affect your credibility as a writer and scholar before doing so. Any direct use of AI-generated materials submitted as your own work will be treated as plagiarism and reported to the Office of Student Conduct and Conflict Resolution (OSCCR).

Course Recordings: The use of recordings will enable you to have access to important information regarding assignments, due dates, group discussions, and so on. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share these recordings outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share recordings outside of this course.** Doing so may result in disciplinary action.

Course Calendar

| Week | Date | Topic/Activity | Assignments Due |
|------|-------------------|--|---|
| 1 | Jan. 16-21 | <ul style="list-style-type: none"> Syllabus review: Read the course syllabus and list of activities and assignments. Please, contact me with questions you may have about the content of the course syllabus. <p>Read the class notes for each week (except week 1).</p> <ul style="list-style-type: none"> <i>Be reminded that announcements will be posted on a weekly basis and when clarifications are needed. A Q&A folder is also available in the navigation menu of the course platform.</i> | <ul style="list-style-type: none"> Introductions (in the <i>Discussion board</i>) <p>Submit via Blackboard Email and by the end of week 1, the <i>Student information forms</i>. These forms are available in the Week 1 Folder/Home Page section.</p> <ul style="list-style-type: none"> <i>POMS introduction</i> |
| 2 | Jan. 22-28 | <ul style="list-style-type: none"> Principles of Scientific Inquiry <p>Check Assignment instructions in the Content area. Contact your instructor with questions, comments, or suggestions.</p> | <p>Read:</p> <ul style="list-style-type: none"> <i>Bell, Smetana, & Binns: Simplifying inquiry instruction.</i> <i>Bybee: Scientific inquiry and science teaching.</i> <p><i>POMS sample 1 (no points earned).</i> <i>Write your POMS on [only] one reading from this week.</i></p> |
| 3 | Jan. 29 Feb. 4 | <ul style="list-style-type: none"> The academic language of science Who are English language learners and why is it important to design instruction specifically for them? | <p>Read:</p> <ul style="list-style-type: none"> Stoddart, Pinar, Latzke, & Canaday: <i>Integrating inquiry science and language development.</i> McLaughlin: <i>Myths and misconceptions about second language learning.</i> Rodriguez & Ramos: <i>Conversation with Krashen.</i> Nargund-Joshi & Bautista: <i>Which comes first--language or content?</i> <p><i>POMS sample 2 (no points earned)</i> <i>Choose one reading from this week to write your POMS statement.</i></p> |

| | | | |
|---|----------------|---|---|
| 4 | Feb. 5-11 | <ul style="list-style-type: none"> • The Nature of Science(NOS) • Critiquing inquiry projects • NextGenerationScienceStandards | <p>Read:</p> <ul style="list-style-type: none"> • McComas: <i>Keys to teach the nature of science.</i> • Colburn: <i>Defining science</i> <p>Submit POMS 1 based on one reading from this week.</p> |
| 5 | Feb. 12-18 | <ul style="list-style-type: none"> • The 5E Learning Cycle | <p>Read:</p> <ul style="list-style-type: none"> • Carr, Sexton, & Lagunoff, Ch.1 • Bybee: <i>The 5E Instructional Model</i> • One reading on emotions (Rivera Maulucci, 2013; Siry & Brendel, 2016; Rodriguez, 2017) <p>Submit POMS 2 based on one reading from this week. Submit Growth Essay 1</p> |
| 6 | Feb. 19-25 | <ul style="list-style-type: none"> • Exploring language in the context of content. | <p>Read:</p> <ul style="list-style-type: none"> • Carr, Sexton, & Lagunoff, Ch.3 • Cummins: <i>BICS and CALP</i> • Bautista: <i>Leveling up</i> <p>Submit POMS 3 based on one reading from this week. Submit Lesson Outline (one per group or individually)</p> |
| 7 | Feb. 26-Mar. 3 | <ul style="list-style-type: none"> • The language of science • 5E lesson samples • Continue with the design of your 5E lesson for the multicultural classroom. | <p>Read:</p> <ul style="list-style-type: none"> • Crowther et al: <i>Academic vocabulary instruction within inquiry science.</i> • McCall: <i>Frontloading for ELLs.</i> • Carr, Sexton, & Lagunoff, Ch.4 <p>Submit POMS 4 based on one reading from this week.</p> |

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| 8 | Mar. 4-10 | <ul style="list-style-type: none"> The SIOP Model | <p>Read:</p> <ul style="list-style-type: none"> Short, Vogt & Echeverria Ch. 2 & 3 <p>Submit POMS 5 based on one reading from this week.</p> <ul style="list-style-type: none"> Threaded Discussion 1 |
| 9 | Mar. 11-17 | <p><i>Spring Break</i> No class activity this week</p> | |
| 10 | Mar. 18-24 | <ul style="list-style-type: none"> Multicultural science education | <p>Read:</p> <ul style="list-style-type: none"> Gallard: <i>Creating a multicultural learning environment in science classrooms.</i> Meyer Monhardt: <i>Fair playing science education</i> Carlone & Smithery: <i>Creating a "We" culture.</i> <p>Submit Annotated Bibliography</p> |
| 11 | Mar. 25-31 | <ul style="list-style-type: none"> Assessment strategies | <p>Read:</p> <ul style="list-style-type: none"> Carr, Sexton, & Lagunoff, Ch. 6 Armon & Morris: <i>Integrated assessment for ELLs.</i> <p>Threaded Discussion 2</p> |
| 12 | Apr. 1-7 | <ul style="list-style-type: none"> Collaborative activity: Sharing of lesson and writing projects. | <p>APA Resources for academic writing at the OWL (Purdue): http://owl.english.purdue.edu/owl/resource/560/01/</p> <p>Submit 5E Lesson for peer review</p> |
| 13 | Apr. 8-14 | <ul style="list-style-type: none"> Strategies for planning and teaching | <p>Read:</p> <ul style="list-style-type: none"> Carr, Sexton, & Lagunoff, Ch. 5 & 7 <p>Threaded Discussion 3</p> |

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| 14 | Apr. 15-21 | <ul style="list-style-type: none"> Tools for the dual language classroom. | <p>Read:</p> <ul style="list-style-type: none"> Dong: <i>Powerful tools for ELLs</i> Quinn, Lee & Valdés: <i>Language demands and opportunities in relation to the NGSS for ELLs</i> Thretter, Ardasheva & Bookstrom: <i>A brick and mortar approach</i> Bautista: <i>Teaching science to ELLs, Part I and Part II</i> <p>Submit your revision of the 5E lesson with comments</p> |
| 15 | Apr. 22–Apr. 28 | <ul style="list-style-type: none"> Developing final projects: Science lessons and academic writing projects. | Continue working on your final projects. |
| 16 | Apr. 29–May 2 | <p>Final projects finalized and delivered.</p> <p><i>May 2 last day of classes.</i></p> <p>Finals Week: May 6-10</p> | Submit 5E Lesson (final draft) and Growth Essay 2 by May 10 at 5:00 pm |

Reading List

- Armon, J., & Morris, L. (2008) Integrating Assessments for ELL. *Science & Children*, 45(8), 49-53.
- Bell, R. L. Smetana, L. & Binns, I. (2005). Simplifying inquiry instruction: Assessing the inquiry level of classroom activities. *The Science Teacher*, 72(7), 30-33.
- Bautista, N., & Castañeda, M. (2011). Teaching science to ELLs, Part I and Part II. *The Science Teacher*, 78(3), 35-39
- Bautista, N. (2014). Leveling up: Addressing ELLs' language proficiency and cognitive abilities in science classrooms. *The Science Teacher*, 81(4), 32-37.
- Bryan, L. A., & Tippins, D. J. (2005). The Monets, Van Goghs, and Renoirs of science education: Writing impressionist tales as a strategy for facilitating prospective teachers' reflections on science experiences. *Journal of Science Teacher Education*, 16, 227-239.
- Bybee, R. W. (2004). Scientific inquiry and science teaching. In L. B. Flick and N. G. Lederman (eds.). *Scientific inquiry and nature of science*. Springer. The Netherlands.
- Bybee, R. W. (2014). The 5E instructional model: Personal reflections and contemporary implications. *Science & Children*, 51(8), 10-13.
- Carlone, H., & Smithery, D. (2014). Creating a "We" culture: Strategies to ensure all

- students connect with science. *Science & Children*, 52(3), 66-71.
9. Colburn, A. (2007). Defining science. *The Science Teacher*, 74(6), 12-13.
 10. 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.
 11. Cummins, J. (1999). BICS and CALP: Clarifying the distinction. ERIC/REC Clearinghouse.
 12. Dong, Y. R. (2013). Powerful learning tools for ELLs. *The Science Teacher*, 80(4): 51-57.
 13. Gallard, A. J. (2003). *Creating a Multicultural Learning Environment in Science Classrooms: Research Matters*. National Association for Research in Science Teaching.
 14. McComas, W. (2004). Key ideas to teach about the nature of science. *The Science Teacher*, 24-27.
 15. McCall, J. (2005). Frontloading for ELL learners: Building concepts and vocabulary before reading. Retrieved from www.literacyspecialists.com on 12/05/2012.
 16. McLaughlin, B. (1992). Myths and misconceptions about second language learning: What every teacher needs to unlearn. Educational Practice Report No. 5.
 17. McComas, W. (2002). A thematic introduction to the nature of science: The rational and content of a course for science educators. Kluwer Academic Publisher. Dordrecht, The Netherlands.
 18. Meyer Monhardt, R. (2000). Fair play in science education: Equal opportunities for minority students. *The Clearing House*, 74(1), 18-22.
 19. Moscovici, H., & Homlund Nelson, T. (1998). Shifting from activitymania to inquiry. *Science & Children*, 14-40.
 20. Quinn, H., Lee, O. & Valdés, G. (2012). *Language demands and opportunities in relation to Next Generation Science Standards for English language learners: What science teachers need to know*. Stanford, CA: Stanford University, Understanding Language Initiative.
 21. Rivera Maulucci, M. S. (2013). Emotions and positional identity in becoming a social justice science teacher: Nicole's story. *Journal of Research in Science Teaching*, 50(4), 453-478.
 22. Rodriguez, A. J. (2017). How do teachers prepare for and respond to students' evoked emotions when addressing real social inequalities through engineering activities? *Theory into Practice*, 56, 263-270.
 23. Siry, C., & Brendel, M. (2016). The inseparable role of emotions in the teaching and learning of primary school science. *Cultural Studies of Science Education*, 11, 803-815
 24. Stoddart, T., Pinal, A., Latzke, M., & Canaday, D. (2002). Integrating inquiry science and language development for English language learners. *Journal of Research in Science Teaching*, 39(8), 664-687.
 25. Tretter, T., Ardasheva, Y. & Bookstrom, E. (2014). A brick and mortar approach: Scaffolding use of specific science language structures for first-year English language learners. *The Science Teacher*, 81(4), 39-44.
 26. Van Maanen, J. (1988). *Tales of the field: On writing ethnography*. Chicago: University of Chicago Press.