

**University of Texas at El Paso
College of Education
Department of Teacher Education**

**SIED 5325: Inquiry Science Education in Bilingual Settings (3.0)
Spring 2014
Online Course (CRN: 23816)**

Contact Information

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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 and messages within the first two days of receiving them (Monday-Friday). E-mails received after 5:00 PM Friday will be answered by Monday.

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) classrooms. This course also offers a review of (1) the historical and instructional aspects of scientific inquiry as an instructional methodology in K-12 learning settings, and (2) of basic science content embedded in inquiry-based activities aimed to support both content and language development in bilingual communities. Students will learn to develop curriculum using instructional models such as sheltered instruction, and the 5E 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, writing student projects, and use of Sheltered Instruction (i.e., SIOP). Grades are derived from participation and a mastery of basic concepts as indicated by group projects and individual activities, 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 in 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 Lectures 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 your 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, a detailed description of course assignments, anticipation guides, email tools, and spaces for collaboration.

Required Textbooks

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

Short, D., Vogt, M. & Echevarria, J. (2011). The SIOP model for teaching science to English learners. Pearson.

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.

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 day of the course. 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>
- The papers submitted in class must pass the expected level of originality and will be checked using the www.turnitin.com service. You can also check your own papers before submitting them for a grade to make sure your work is original and will not get you in trouble.

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 Blackboard* 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 specially need to hear your personal comments, your reactions to what you have read, plus your own experiences. All of this input adds to the shared learning, and the sense of community in our course.
4. *Inform* your instructor 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. *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.
8. *Use correct English.* Online learning environments are not the place for net acronyms.
9. Make sure that your answers to course assignments (except for group projects) will be your own work.

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 requires the integration of skills in content development and content delivery in ELLs 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.
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 content area lessons to accommodate English language learners.

4. Demonstrate proficiency in the use of the 5E Learning Cycle as a model 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 Texas Essential Knowledge and Skills (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 in the *teaching and learning of science with ELLs*.

Assessment of Student Learning Outcomes

Assignment	Assessment of learning outcomes
1. Writing Requirement	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 Spring 2014

Assignment	Date Open	Due Date—Closed
<p><i>Writing Requirement (30%) (IA)</i></p> <ul style="list-style-type: none"> - Submit [via Blackboard email]paper topic (<i>no points earned</i>) - Submit annotated bibliography - Email first draft for peer review - Reviewers return first draft with comments - Final submission 	<p>Feb. 17</p> <p>Mar. 17 at 7:00 AM</p> <p>Apr. 7 at 7:00 AM</p> <p>May 5 at 7:00 AM</p> <p>May 12 at 7:00 AM</p>	<p>Feb. 23</p> <p>Mar. 23 at 11:55 PM</p> <p>Apr. 13 at 11:55 PM</p> <p>May 8 at 11:55 PM</p> <p>May 16 at 11:55 PM</p>
<p><i>5E Lesson Plan (25%) (GA)</i></p> <ul style="list-style-type: none"> - Submit [via Blackboard email]paper topic (<i>no points earned</i>) - Draft 1*: Addressing the 5E Cycle - Draft 2** - Reviewers return final draft with comments - Final submission 	<p>Feb. 24</p> <p>Mar. 24 at 7:00 AM</p> <p>Apr. 7 at 7:00 AM</p> <p>May. 5 at 7:00 AM</p> <p>May 12 at 7:00 AM</p>	<p>Mar. 2</p> <p>Mar. 30 at 11:55 PM</p> <p>Apr. 13 at 11:55 PM</p> <p>May. 8 at 11:55 PM</p> <p>May 16 at 11:55 PM</p>

Assignment	Date Open	Due Date—Closed
<p><i>Points of Most Significance (POMS) (IA)</i> (20%) (you are expected to submit 4 POMS)</p> <p>POMS introduction..... Jan. 21 POMS sample 1 (no points earned)..... Jan. 27 at 7:00 AM POMS sample 2 (no points earned) Feb. 3 at 7:00 AM POMS 1..... Feb. 10 at 7:00 AM POMS 2 Feb. 17 at 7:00 AM POMS 3 Feb. 24 at 7:00 AM POMS 4 Mar. 3 at 7:00 AM POMS 5 Mar. 17 at 7:00 AM</p>		<p>Jan. 26 Feb. 2 at 11:55 PM Feb. 9 at 11:55 PM Feb. 16 at 11:55 PM Feb. 23 at 11:55 PM Mar. 2 at 11:55 PM Mar. 9 at 11:55 PM Mar. 23 at 11:55 PM</p>
<p><i>Threaded Discussion (TD) (IA) (15%)</i> <i>Weekly reading discussion (10%) (GA)</i> (you are expected to participate in three TDs)</p> <p>Threaded Discussion 1 Mar. 24 at 7:00 AM Threaded Discussion 2 Mar. 31 at 7:00 AM Threaded Discussion 3 Apr. 7 at 7:00 AM Threaded Discussion 4 Apr. 14 at 7:00 AM Threaded Discussion 5 Apr. 21 at 7:00 AM</p>		<p>Mar. 30 at 11:55 PM Apr. 6 at 11:55 PM Apr. 13 at 11:55 PM Apr. 20 at 11:55 PM Apr. 27 at 11:55 PM</p>

**Version 1 will be reviewed by the instructor—one lesson per group only.*

***Version 2 will be peer-reviewed: Each group will be assigned a lesson but the review exercise will be an individual task.*

****The instructor will assign each group a lesson to complete the peer-review exercise*

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	Percentage of Grade
Writing Requirement (GA)	80 points	30%
5E Lesson (GA)	100 points	25%
POMS (IA)	20* points	20%
Threaded Discussions + reading discussion (IA)	9 + 5 points	15% + 10%
Total	214 points	100%

*If you submit four type III POMS (Score depends on the POMS type you submit. Type I= 3 pts; Type II= 4 pts; Type III= 5 pts)

G: group assignment; I: individual 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%

D = 60-69.9%

B = 80-89.9%

F = BELOW 60% C = 70-79.9%

Description of the Assignments

1. Writing Requirement (30%): 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.

This is a project of your own choosing. The only limitation is that it needs to focus on the topic of science teaching and learning in the context of ELLs classrooms; it needs to be prepared for this course and this course only. Your project can be:

1. **A literature review paper** in which you explore/analyze an issue in bilingual science education.
2. **A paper for practitioners:** this project could be design as (a) an innovative bilingual education teaching unit or lesson developed by you, implemented in your own classroom or informal learning setting, (b) a case study (focused on science education) of a bilingual classroom, bilingual school, or bilingual family in which you assess strengths, weaknesses, challenges, opportunities.

The paper will be 6-8 pages long (not including references), doubled spaced, using 12 point standard font. The paper must have a focus on science education and English Language Learners (ELLs) and contain the following sections (you must use these sub-headings in your paper): (1) a 50-word **abstract** (2) **introduction** that presents a clear thesis statement; (3) a science education **issue** related to the work teachers do in ELLs classroom. This is an issue that you want to address and attempt to solve in your work, or the work of others with ELLs, (4) a **body of text** that describe the research **methodology** and develops your thesis; (5) a section that explains instructional and learning strategies or **intervention** (paper for practitioners)/**Results** in the case of a literature review paper; (6) a **conclusion**; and (7) a list of **references** (At least 10 peer review publications). The topic of the paper must be approved by the instructor. Remember, two types of papers are available for you to choose: paper for practitioners and literature review (See instructions in the Assignment document in the Course Content area).

Annotated Bibliography: The bibliography for your manuscript should contain an entry for each document you have found useful for your project, and must list every document that you cite in your 'References' section. This submission should include at least five entries. The entry will consist of two parts:

1. A citation in APA Style for the document (journal article, conference paper, web page, book, etc.
2. An annotation consisting of a brief (~100 word) descriptive and evaluative paragraph.

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

2. Designing a 5E lesson plan for the multicultural classroom (25%): The 5E lesson assignment is a group-planned project (no more than 3 students per group), appropriate for the classroom in which you teach or would like to teach. You will be given an opportunity to participate in critiquing, revising, and improving your own and others' work. You will be expected to turn in rough drafts, comments, and final drafts of the lessons. The lesson plan should identify a language proficiency level.

3. Points of Most Significance (POMS) (20%): Adapted from McComas (2002), POMS submissions are based *on one* assigned reading for 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 get the most out of the text/s and be ready to contribute to class discussions and writing assignments. Each POMS will be based on a single reading from each week and on one POMS type (Summary, Synthesis or Application). Feel free to choose the paper/book chapter you want to use for your POMS. You are expected to submit **four POMS**.

There are three types of POMS, 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 pts).

POMS' Rules

Rule 1: Each individual POMS statement is to be no more than 50 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. (names and numbers will not be counted for the 50 words maximum).

Rule 4: POMS should be submitted by the assigned week (no later than Sunday at midnight) on the course platform only (Blackboard). Include your name and the reading related to the POMS. Please contact me *ahead of time* 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 classes that support or refute a position with which you would like to draw comparisons or conclusions.

Rule 6: At least two of your five submissions should be Type III.

Rule 7: Five points will be lost with each non-submitted POMS. You are expected to submit four.

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.

We will practice writing POMS during weeks 2 and 3 (See course schedule). This submission [sample one] will not be graded—you will receive feedback only.

4. Threaded Discussion on Blackboard (4 required, 15 %): There will be five 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. You are expected to participate in at least **3 of the 5** opportunities. Each contribution will be awarded 0, 1, 2, or 3 points based on the complexity and thoughtfulness of your comments. For example, 3 excellent participations at 3 points each can satisfy the entire 9 total points. However, if points are missed or deducted for less than complex participation, you may use up to the remaining TDs to earn the 9 total points. (See rubric in the Assignment document in the Course Content area).

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

Leading Reading Discussion (10%): For this task you and your teammates (*Reading Partners**) will do two things:

1. Read the book chapter/s or article/s in advance so that you share with the whole class a reading comprehension strategy (i.e., anticipation guide [AG]) based on the assigned reading/s (See AG examples in the Assignment document). For instance, AGs are tools to set the tone for a reading task (others options include the KTW chart [Know, Think I Know, and Want to Know], the guiding reading approach, and pre-reading questions). AGs consist of a series of questions related to the reading assignment and are intended to get students engaged in the content material. Perhaps, this is a strategy you have used in your classroom. It is recommended that each question/statement:

- Be appealing to the student and include some inaccurate information
- Be presented in a way as to provoke critical thinking
- Force students to interpret segments of the text, not just decode answers
- Include a space for evidence of the response after the reading

**Find the Reading Partners table in the course content area by the end of the first week of classes.*

2. Prepare a prompt based on the assigned readings and send it to your instructor to be posted in the Threaded Discussion (TD) of the week. Please, make sure you send the prompt/s before the open date of the TD.

I will provide reading strategy samples during weeks 2-7. I will also send a list of possible reading strategies for your group to choose. However feel free to suggest a reading strategy not included in my list.

Remember Reading Partners will: (a) prepare and share 'one' reading comprehension strategy to help your classmates interact with the reading/s—the reading comprehension strategy is to be submitted by email to the instructor one in advance, and (b) propose a question/prompt for the threaded discussion of the week. As a group make sure to assign roles and responsibilities to each member.

Academic Policies

Attendance Policy: Attendance is taken by monitoring your work and participation online. You are responsible for doing all the work and reviewing the online lectures every week.

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 0. 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. Create your time management plan and stick to it, so you can get everything done on time.

Make-up Work: There are no make-up assignments unless in case of serious bodily harm of death in family. You must bring a document issued by a health service provider or institution in order to turn in late work of make up an exam.

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

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.

Students with Disabilities: I will make any reasonable accommodations for students with limitations due to disabilities, including learning disabilities. Please see me personally before or after class in the first two weeks or make an appointment, to discuss any special needs you might have. If you have a documented disability and require specific accommodations, you will need to contact the Disabled Student Services Office in the East Union Bldg., Room 106 within the first two weeks of classes. The Disabled Student Services Office can also be reached in the following ways:

E-mail: dss@utep.edu

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

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.

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 ARE 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.
- Think before you push the "Send" button. During group discussions, did you clearly say what you meant to say? How will the person on the other end read the words? While you can't anticipate all reactions, do read over what you've written before you send it.

Course Calendar:

Wk	Date	Topic/Activity	Assignments Due
Part I: Inquiry and Language Learning			
1	Jan. 21-26	<ul style="list-style-type: none"> • Syllabus review: Read the course syllabus and list of activities and assignments. Please, send me your questions regarding activities and assignments. <p>Read the class notes for each week. Find them in the Class Notes folder.</p> <p><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 Content area.</i></p>	<ul style="list-style-type: none"> • Introductions (in the <i>Discussion</i> section of the navigation menu) <p>Submit via Blackboard email and by the end of the week, (i) the <u><i>student information form</i></u> and the (ii) <u><i>student profile</i></u>. Both forms are available in the Course Content Area.</p> <p><i>POMS introduction</i></p>
2	Jan. 27-Feb. 2	<ul style="list-style-type: none"> • Principles of Scientific inquiry <p>Check the TIMSS website for science lesson samples from different countries.</p> <p>http://timssvideo.com/videos/Science Trends in Math and Science Study (TIMSS). See Roth's & Garnier's paper on this topic.</p> <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"> • Martin-Hansen: <i>Defining inquiry</i>. • Bybee: <i>Scientific inquiry and science teaching</i>. <p><i>POMS sample 1 (no points earned)</i> <i>Choose one reading to write your POMS.</i></p>

3	Feb. 3-9	<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"> Short, Vogt & Echeverria Ch. 1 McLaughlin: <i>Myths and misconceptions about second language learning.</i> Rodriguez & Ramos: <i>Conversation with Krashen.</i> Science and science education quiz—<i>no points earned.</i> (in the Assessment section) <p>POMS sample 2 (no points earned)</p> <p><i>Choose one reading to write your POMS.</i></p>
4	Feb. 10-16	<ul style="list-style-type: none"> The Nature of Science (NOS) Critiquing inquiry projects 	<p>Read:</p> <ul style="list-style-type: none"> Clough: <i>The nature of science.</i> McComas: <i>Keys to teach the nature of science.</i> Brown & Kumar: <i>The scientific method</i> <p>POMS 1 <i>Based on one reading from this week.</i></p>
5	Feb. 17-23	<ul style="list-style-type: none"> The 5E Learning Cycle <p>Resource: sample lesson plans</p>	<p>Read:</p> <ul style="list-style-type: none"> Carr, Sexton, & Lagunoff, Ch. 1 Colburn: <i>Constructivism: Science education's grand unifying theory</i> Crowther: <i>ELLs and science</i> <p>POMS 2 <i>Based on one reading from this week.</i> Submit the topic of your writing project</p>

6	Feb. 24 Mar. 2	<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 & Castaneda: <i>Teaching science to ELLs, Part I.</i> <p>POMS 3 Based on one reading from this week. Submit the topic of your 5E lesson</p>
7	Mar. 3-9	<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><i>March 10-14 Spring Break</i></p>	<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>POMS 4 Based on one reading from this week.</p>
Part II: Sheltered Instruction			
8	Mar. 17-23	<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>POMS 5 Based on one reading from this week. Submit annotated bibliography</p>
9	Mar. 24-30	<ul style="list-style-type: none"> Multicultural science education <p><i>Resources:</i></p> <p>-Read Gallard's paper at: http://www.narst.org/publications/research/multicultural.cfm</p>	<p>Read:</p> <ul style="list-style-type: none"> Gallard: <i>Creating a multicultural learning environment in science classrooms.</i> <p>Threaded Discussion 1 Email your instructor the first draft of your 5E lesson (no later</p>

		-Cultural Inquiry Process http://classweb.gmu.edu/cip/r/r-ind.htm	than March 30)
10	Mar. 31 Apr. 6	<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>
Part III: Academic Writing and Lesson Documentation			
11	Apr. 7-13	<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 : first draft of paper and second draft of 5E lesson plan for peer review(no later than Apr. 13)</p>
12	Apr. 14-20	<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>
13	Apr. 21-27	<ul style="list-style-type: none"> Tools for the dual language classroom. 	<p>Read:</p> <ul style="list-style-type: none"> Dong: Powerful tools for ELLs Quinn, Lee & Valdés: Language demands and opportunities in relation to the NGSS for ELLs. <p>Threaded Discussion 4</p>
14	May 5-8 <i>05/08 last day of classes</i>	<ul style="list-style-type: none"> Developing final projects: Science lessons and academic writing projects. 	<p>Continue working on your final projects.</p> <p>Threaded Discussion 5 Return first draft of paper and</p>

			<i>final draft of the 5E lesson with comments (Cc your instructor)</i>
15	May 12-16	Final projects finalized and delivered	<i>5E Lesson final submission Paper final submission</i>

Reading List

1. Armon, J., & Morris, L. (2008) Integrating Assessments for ELL. *Science & Children*, 45(8), 49-53.
2. Brown, R. A. & Kumar, A. (2013). The scientific method: Reality or myth? *The Journal of College Science Teaching*, 42(4): 10-11.
3. Bautista, N., & Castañeda, M. (2011). Teaching science to ELLs, Part I. *The Science Teacher*, 78(3), 35-39.
4. Bybee, R. Scientific inquiry and science teaching. In L. B. Flick and N. G. Lederman (eds.) *Scientific inquiry and nature of science*. Springer. The Netherlands
5. Clough, M. (2000). The nature of science: Understanding how the game of science is played. *The Clearing House*, 74(1), 13-17.
6. Colburn, A. (2000). Constructivism: Science education's "grand unifying theory." *The Clearing House*, 74(1), 9-12.
7. 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.
8. Cummins, J. (1999). BICS and CALP: Clarifying the distinction. ERIC/REC Clearinghouse.
9. Dong, Y. R. (2013). Powerful learning tools for ELLs. *The Science Teacher*, 80(4): 51-57.
10. Gallard, A. J. (2003). *Creating a Multicultural Learning Environment in Science Classrooms: Research Matters*. National Association for Research in Science Teaching.
11. Hansen-Martin, L. (2002). *The Science Teacher*, 34-37.
12. McComas, W. (2004). Key ideas to teach about the nature of science. *The Science Teacher*, 24-27.
13. McCall, J. (2005). Frontloading for ELL learners: Building concepts and vocabulary before reading. Retrieved from www.literacyspecialists.com on 12/05/2012.
14. McLaughlin, B. (1992). Myths and misconceptions about second language learning: What every teacher needs to unlearn. Educational Practice Report No. 5.
15. 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.
16. Roth, K. & Garnier, H. (2007). What science teaching looks like: An international perspective. *Educational Leadership*, 64(4): 16-23.