The University of Texas at San Antonio  
College of Education and Human Development  
Department of Interdisciplinary Learning and Teaching  
C&I 4433.001 Approaches to Teaching Science 4-8  
Spring, 2010

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Class Meetings: Thursdays 2:00-4:45 PM 1604 Campus  
Classroom number: MB 0.414 1604 Campus

Department of Interdisciplinary Learning and Teaching  
MISSION AND VISION

The mission of the department of ILT is to foster the intellectual and professional growth and integrity of students and faculty through critical reflection and dialogue, civic responsibility, and leadership. This mission will be accomplished by nurturing a community of interdisciplinary learners who:

- Promote excellence in academic and pedagogical knowledge and research  
- Engage in reflective practice  
- Embody a strong professional identity and can articulate their philosophies and values  
- Value diversity and multiple perspectives  
- Promote equality and social justice  
- Care about their students and their profession  
- Advocate for educational change and reform

GOALS

The department of ILT will create a context that nurtures interdisciplinary learners who:

- Acquire and demonstrate content and discipline knowledge  
- Demonstrate an awareness and acknowledgement of and engagement in research-based, reflective, culturally responsive practices  
- Are producers, disseminators, and critical consumers of research  
- Demonstrate an awareness and acknowledgment of and engagement in social justice and equitable practices  
- Articulate their professional philosophy and demonstrate a strong professional identity
CATALOG DESCRIPTION

Study of curricula, instructional, and management approaches to teaching science grades 4–8. This course emphasizes a constructivist approach in developing inductive and inquiry teaching methods. Special emphasis is placed on the integration of technology in diverse learning environments. A minimum of 20 hours of interaction with public school students and teachers under the supervision of University faculty is required.

COURSE GOALS

- To have a better understanding of the relationship between the science teacher, student, content/standards, classroom/school/community, curriculum, instruction, and assessment; and
- To provide practical information about the design, development, implementation, and evaluation of science curriculum, instruction, and assessment and classroom management.

Academic excellence is a goal of educators. When teachers reflect upon their philosophy and values, examine their teaching style and preferences, consider their personality traits, and use this information when developing and delivering curriculum, instruction, and assessment, then academic excellence occurs. When professional judgment is used to make sound decisions regarding how to respect and address the cultural contexts, personal knowledge, and voices of each and every student in curriculum, instruction, and assessment, then academic excellence occurs. When school and district-level, state-mandated, and professional association standards are analyzed for clarity and purpose and developmentally appropriate content is identified, then academic excellence occurs. When the school (e.g., students, teachers, administrators, staff, parents) is true to its vision and mission, when the community (e.g., you and elderly, advantaged and disadvantaged) develops a sense of place, and when the school and the community work together for the betterment of each other, then academic excellence occurs. Academic excellence represents an accumulation of high standards, rigorous learning, and meaningful work occurring across time.
INFORMATION ITEMS

Democratic Classroom: In this course, democratic learning will be practiced. In a democratic classroom students and teachers work collaboratively in making decisions about what is to be learned; how learning and assessment should occur; and the importance of that learning. In a democratic classroom, the students and teacher collaboratively determine the structure.

Scholastic Integrity: Students are expected to be above reproach in scholastic activities. Students who violate university rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. “Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts” (Regent’s Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, subdivision 3.22). Since scholastic dishonesty harms the individual, all students and the integrity of the university, policies on scholastic dishonesty will be strictly enforced.

http://www.utsa.edu/infoguide/appendices/b.html under section 203

Fitness to Teach Policy: The COEHD’s “Fitness to Teach Policy” specifically addresses issues of attendance, dispositions, professionalism, and scholarship. Students are advised to review the policy: http://www.utsa.edu/hop/chapter5/5-17.htm

Communication with the Instructor: Your official means of communication from The University of Texas at San Antonio Teaching will be through your UTSA email account.

Assignments: The following format is required for every assignment submitted. Deviating from the format may result in reduced points, returned paper, or rejection of the assignment completely. All submissions will be typed, SINGLE-spaced one side only, in either 12 point Helvetica, or 12 point New Times Roman font. All papers are to be stapled (no paperclips).

Policy on Late Assignments: Assignments should be turned in by the announced due dates. Only assignments submitted complete and on time will be considered for full credit. Any assignments turned more than one week late will receive zero points. Resubmission of assignments for improved grades will not be accepted, therefore in case a health or family emergency prevents you from turning in an assignment by the due date please contact the instructor immediately to work out an alternative due date. You are encouraged to seek assistance and feedback prior to due dates so as not to fail to submit assignments by due date.

Required Text

Recommended Readings


**Technology**

It is expected that you are able to use technology in your professional roles. It will be the responsibility of each student to check the class WebCT site each week to determine assignments, check for the minutes of previous classes, announcements, etc.

**Recommended Professional memberships**

It is recommended you join the National Science Teachers Association and/or another professional organization (for example: National Middle School Association) that promotes your growth and development in science education (the website for information on NSTA membership is above in the recommended resources). Be sure to indicate a student membership. Most professional memberships send materials and journals that will help in your development as a teacher and in this class. With the NSTA membership you will get *Science Scope*, a journal that features teaching concepts, issues, and practical ideas for the middle grades. The journal concentrates on technology in the classroom, assessment, and the use of science in the world around us. It is filled with excellent activities and is worth the money you pay to join the organization!

**COURSE REQUIREMENTS**

**Class Participation/Attendance/Competencies/Activities (10 points):** It is expected that students will participate fully in all aspects of the class. As a professional, **courtesy, promptness, and regular attendance** should be the rule. If you know you are going to be absent, please discuss it with the instructor prior to the absence. Missing more than twenty minutes of a class will be considered an absence. Unless approved, each absence will equate to a deduction of 1 point. Absentees are responsible for all materials distributed or discussed. Students will be expected to sign the attendance sheet daily. Activities related to portfolio development will be periodically completed during the class.

**Leading our Class Discussion through Minutes (10 points)**

Each week, one student will be responsible for taking class minutes. This should be very similar to being a secretary and taking minutes at a meeting. You should focus on important issues and questions that emerge during the class discussion or activities. Taking the class minutes of our class discussions/activities will require that you write very carefully, thinking about discussion topics that you might succinctly present the next week for our discussion. You might want to examine the week’s minutes to assist you in thinking about ways to expand our classroom discussion the following week. Please bring in items to support your discussion of the minutes. These may include examples of student work, lesson plans, journal articles, curriculum materials, and pictures or short video clips, etc. You should send the minutes to the instructor via email and present any questions at least 2 days before our class meeting.

**Field Experience (30 points):**

A requirement for any course with field experiences in the schools is that every UTSA student must submit to a criminal history check. No students are allowed in a school until this check is conducted and confirmed by our administration. Successful completion of the field experience in science classes is required for obtaining course credit. This includes **20 hours** of observing **and** teaching in a middle school science class. A course grade cannot be determined until documentation of satisfactory completion of fieldwork has been provided. Specific guidelines for the field experience will be provided. **Students must demonstrate professional conduct and attire that is appropriate for teaching young adolescents in educational settings.** Students must adhere to all policies and regulations of the school or facility serving as a field-base site. Any breach of professional ethics or conduct
deemed unsuitable by the cooperating teacher in the field placement and the course instructor could result in the student being dropped from the course or disciplinary action by the university following the policies specified in the UTSA Faculty Handbook.

**Portfolio Components based on Conceptual Framework of Teaching Practice and Reflection Papers (50 points):**

1. Teacher
   - Who am I as a science teacher?
2. Student
   - Who are my science students?
3. Content/Standards
   - What is science?
   - How do I use the science standards?
   - How do I use the science TEKS?
4. Classroom/School/Community
   - How do I set up my science classroom?
   - How is science used in the community?
5. Curriculum
   - What curricular models should I use in science?
   - What interactive science websites should I use?
   - What is a science concept contract?
   - How is science taught as a separate subject?
6. Instruction
   - How do I plan a science design down lesson?
   - What science strategies should I use?
7. Assessment
   - What traditional assessments should I use in science?
   - What alternative assessments do I use in science?
   - How do I use formative assessment in science?

90 – 100 points = A  
80 – 89 points = B  
70 – 79 points = C  
Below 70 points = F

**Honor System**

We will adhere to the UTSA student code of conduct in this course: [http://www.utsa.edu/osja/conductoutline.cfm](http://www.utsa.edu/osja/conductoutline.cfm). All assignments, activities, and exams for this course are under an honor system. Please cite all sources of information for your work using the APA format/style. Because a major purpose of many of the assignments for this course is to provide you with experience in utilizing various sources of information and ideas, I encourage you to incorporate from outside sources. Again, please provide all sources of these ideas. Please feel free to ask me if you have any questions about what is acceptable.

**Accommodations**
UTSA students with documented disabilities have access to an array of support services through the Office of Disability Services (office: MS 2.03.18; phone: 458-4157; 458-4981; Downtown FS 1.526, 458-2816; web: http://www.utsa.edu/disability/).

It is my goal to fully include all persons in this course. Students with disabilities must be registered with the Office of Disability Services in order to receive support services.

Register with the Office of Disabilities Services and let me know via a letter from the Office of Disabilities Services if you have a special need(s) that will require any accommodations in the curriculum, instruction, or assessments of this course in order to enable you to successfully participate. I will maintain the confidentiality of the information that you share with me.

**COEHD Policies and Procedures**

Students are expected to demonstrate professional conduct and attire during class sessions (see Fitness to Teach policy document located in the Department website). All cell phones and beepers must be turned off during class periods unless the instructor grants prior permission.

The instructor will follow all the policies and procedures, in regard to students, as they are specified in the UTSA Faculty Handbook and the Fitness to Teach Policy document. Any incidence of scholastic dishonesty or other student discipline issues will be managed as the Handbook specifies (Faculty Handbook, Section 2.37, pages IV-3li-vi).

Students are expected to be above reproach in scholastic activities. Students who violate university rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University. According to The Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22, "Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, and act designed to give unfair advantage to a student or the attempt to commit such acts." Since scholastic dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

**Conduct Expected of Students**

“A student is expected and required to obey federal, state and local laws, to comply with the Regent's Rules and Regulations, with University Rules and Regulations, with directives issued by an administrative official of the System or the University in the course of his or her authorized duties, and to observe standards of conduct appropriate for an academic institution” (Student Code of Conduct, sect. 201). For more information go to: http://www.utsa.edu/osja/conductoutline.cfm

No electronic recording of lectures or class sessions may be done without the prior permission of the instructor.

**University Policy on Academic Dishonesty**

_University Policy on Academic Dishonesty:_ Students are expected to be above reproach in scholastic activities. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the University. "Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts" (UT Regent's Rules of Regulation). Since scholastic dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. If you have any questions about this (especially what constitutes
plagiarism), please stop by my office and I’d be most happy to discuss it. You can also refer to the UTSA Student Code of Conduct on scholastic dishonesty and disciplinary action. This is available at: http://www.utsa.edu/OSJA/index.cfm

Academic Success and the Tomás Rivera Center

Academic Success and the Tomás Rivera Center: The TRC provides an array of services to assist student in achieving learning success. A large proportion of beginning students find that the skills they develop in high school may not be adequate for success at the college level. The TRC provides training and assistance in such areas as study skills, test taking strategies, note taking skills, etc. The Center also has individual advising and tutoring for some courses. At the moment, tutoring is not available for this course but the various skills workshops that they run along with individual advising may prove extremely helpful. The TRC is located in the University Center 1.01.02 (far west end of the UC). You can reach them via the web (www.utsa.edu/trcss) or by phone (458-4694).

This Syllabus is provided for informational purposes regarding the anticipated course content and schedule of this course. It is based upon the most recent information available on the date of its issuance and is as accurate and complete as possible. I reserve the right to make any changes I deem necessary and/or appropriate. I will make my best efforts to communicate any changes in the syllabus in a timely manner. Students are responsible for being aware of these changes.

**Tentative Schedule**

Please note: Course content may vary from the outline to meet the needs of this particular group or because of unforeseen circumstances.

* Indicates a chapter in the textbook which should have been read before class.

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<tr>
<td>Field Experience Expectations</td>
<td>The Nature of Science*</td>
<td>Science Education in Social Context*</td>
<td>Towards a Philosophy of Hands-On, Inquiry-Based Science*</td>
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<tr>
<td>Introductions</td>
<td>What is science?</td>
<td>Who am I as a science teacher?</td>
<td>How is science taught in the middle school?</td>
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<tr>
<td>Course Information</td>
<td>Problems in the teaching of science</td>
<td>What can teachers do to make a difference in the lives of students?</td>
<td>What curricular models should I use in science?</td>
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<tr>
<td>Conceptual Framework of Teaching Practice</td>
<td>This isn’t how I learned science!</td>
<td>How is science used in the community?</td>
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<td>What characteristics make teachers motivational and inspiring to their students</td>
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<td>Diverse Learners in the Science Classroom*</td>
<td>Observing as a Scientist and as a Science Teacher*</td>
<td>Understanding and Teaching Earth and Space Sciences*</td>
<td>Understanding and Teaching Biology*</td>
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<td>Who are my science students?</td>
<td>What science programs are there to use?</td>
<td>How do I plan a science design down lesson?</td>
<td>What traditional assessments should I use in science?</td>
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<td>How do I use the science standards?</td>
<td>How do I set up my science classroom?</td>
<td>What science strategies should I use?</td>
<td>What alternative assessments do I use in science?</td>
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<td>How do I use the science TEKS?</td>
<td>What does a middle school classroom look like?</td>
<td>What interactive science web sites should I use?</td>
<td>How do I use formative assessment in science?</td>
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<tr>
<th>March 11, 2010</th>
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<th>April 1, 2010</th>
<th>April 8, 2010</th>
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<tbody>
<tr>
<td>Understanding and Teaching Chemistry*</td>
<td>Understanding and Teaching Physics*</td>
<td>Understanding and Teaching GIS/GPS</td>
<td>Teacher Professional Development: Growing as a Teacher of Science*</td>
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<td>Discipline and Safety in the Science Classroom</td>
<td>Teaching Strategies</td>
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<td>IDEA</td>
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<th>April 22, 2010</th>
<th>May 7, 2010</th>
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<tbody>
<tr>
<td>IDEA Survey</td>
<td>Field Trip</td>
<td>Final Exam (10:30-1:00pm)</td>
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<tr>
<td>Teaching Strategies</td>
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