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| ***Department of Curriculum & Instruction*** | *A-fullname-block-2color* |
| Coehp |
| ***ELED 5312 Instruction Strategies Science (3 credits)***  | ***Spring 2014*** |
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***Instructor Information:***

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| **Instructor**: | Jiyoon Yoon, Ph.D. | **Phone:** | (817) 272-1268 |
| **Office:** | Science Hall 322A | **Fax:** | (817) 272-0782 |
| **E-Mail:** | jiyoon@uta.edu | **Mailbox:** | 19777 |

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| **Office Hours:**  |  7:20 – 8:20PM on Thursdays & Upon Request |  |
| **Faculty Profile** | [https://www.uta.edu/mentis/profile/?10671](https://www.uta.edu/mentis/profile/?10671" \t "_blank)  |  |
| **Course Web Site:** | <http://elearn.uta.edu> |

***Course Information:***

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| **Course Title:**  | Instruction Strategies Science |
| **Course Number:** | **ELED 5312.001 (25829)** |
| **Semester:** | **Spring, 2014** |
| **Course Location and Time**:  | [Life Science Building](http://www.uta.edu/maps/) 102 **Thursdays 5:30 PM – 7:20 PM** |

***Catalog Description:***

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| Principles of science concepts and integration with other subject concepts in relation to cognitive, socio-emotional, and psychomotor development. Emphasis on developing dispositions promoting scientific investigation and appropriate objects, materials, activities and programs to understand science concepts. Course will also address the instructional needs and appropriate assessment of all students in inclusive socio-economic, multicultural, and multilingual classrooms for this content area. Emphasis is creatively developing, testing, and revising elementary school curriculum/or instructional strategies that support all of urban, suburban, and rural students in learning science content based on national and Texas standards and research studies for global classrooms. Students will be assigned for 1 day each week in an approved setting for the practicum portions of these courses (Internship). |

***Textbooks (Optional) and Materials:***

Gregory, G. & Chapman, C. (2006). *Differentiated Instructional Strategies: One Size Does not Fit All.*

Hammerman, E. & Musial, D. (2008). *Integrating Science with Mathematics and Literacy: New Visions for Learning and Assessment*. Second Edition. Thousand Oaks, CA: Corwin Press.

Jarrett, D. (1997). *Inquiry Strategies for Science and Mathematics Learning: It’s Just Good Teaching.* [*http://educationnorthwest.org/webfm\_send/748*](http://educationnorthwest.org/webfm_send/748)

Marek, E.A. & Cavallo, A.M. (1997). *The learning cycle; Elementary school science and beyond*. Revised Edition. Portsmouth, NH: Heinemann (*Main Text*).

Tuomi, J. & Tweed, A. (2006). *Designing Effective Science Lessons: Building the Framework.* [*http://www.mcrel.org/Nanoteach/pdfs/DESL\_manual\_samples.pdf*](http://www.mcrel.org/Nanoteach/pdfs/DESL_manual_samples.pdf)

Tk20: The College of Education and Health Professions has adopted Tk20, a comprehensive data management system that will provide us with powerful tools to manage our growth and streamline our processes to enable us to meet your needs more efficiently and effectively. As with other course materials, you will need to subscribe to the program for a *one-time only, non-refundable* cost of $100. You may purchase your subscription online from a link provided on the system’s Web site or from the UT Arlington Bookstore as you would a textbook or other course materials. Please see the letter from Dean Gerlach and visit [http://www.uta.edu/coehp/tk20](http://www.uta.edu/coehp/tk20%22%20%5Ct%20%22_blank) for more information. The set of tools that is required as a course text is called *TK20 HigherEd*. The following is a partial listing of what the Tk20 system will enable you to do:

* Create your key assessments and performance artifacts online, which you will be able to access and use beyond graduation. This will enable you to present documented performance data and information to prospective employers, who are increasingly interested in data-supported evidence of an individual’s current and potential performance.
* Submit forms online, including applications for field-based experiences such as student teaching, practicum, internships, or other clinical practice required for teacher or administrator certification, and receive timely notification of placement details sent directly to your Tk20 account.
* Create multimedia portfolios for documenting your work for presentation to faculty and prospective employers that can be exported to CDs or other media.
* Monitor your progress throughout the program and have access to a fully documented record of your program performance, creating a vested partnership between you and faculty in your progress through your academic program.

On-line tutorials and training materials will orient you to the Tk20 system and its use. For additional information, go to http://www.uta.edu/coehp/tk20. We appreciate your hard work and dedication toward completing your education in the College of Education and Health Professions at the University of Texas at Arlington.

**Posting key assessment (Individual Lesson Plan) to TK20 is required. Failure to post the identified assessments to TK20 will render the assignments ungraded and will result in a failing course grade.**

National Science Teachers Association*. Science and Children*, *Science Scope*, and *The Science Teacher* (monthly publications for elementary, middle and high school science teachers). Washington, DC: NSTA. <http://www.nsta.org>

National Guidelines, Standards, and Professional Organizations**:**

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| NCATE/ACEI Standards | *Elementary Education Standards and Supporting Explanation*<http://acei.org/images/stories/documents/ACEIElementaryStandardsSupportingExplanation.5.07.pdf>  |
| National Research Council (NRC, 1996) | *National Science Education Standards. Washington, DC: National Academy Press*. <http://www.nap.edu/openbook.php?record_id=4962> |
| National Science Teachers Association (NSTA, 2003) | *Standards for Science Teacher Preparation, Revised*. Washington, DC: National Science Teachers Association. <http://www.nsta.org/pdfs/NSTAstandards2003.pdf>  |
| National Association for Sport/Physical Education  | *National Standards for Physical Education* http://www.aahperd.org/naspe/standards/nationalStandards/PEstandards.cfm |
| National Health Education Standards (NHES) | *National Health Education Standards* <http://www.cdc.gov/healthyyouth/sher/standards/> |

State Guidelines, Competencies, and Professional Organizations:

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| Texas Essential Knowledge and Skills (TEKS) | Texas Education Agency, 2006. (Science, Health Education, & Physical Education) <http://www.tea.state.tx.us/index2.aspx?id=6148> |
| Educator’s Standards | Science Generalist EC-6 Standards<http://www.tea.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=6044> |
| Texas Educator’s Code of Ethics | [http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac\_view=4&ti=19&pt=7&ch=247&rl=Y](http://info.sos.state.tx.us/pls/pub/readtac%24ext.ViewTAC?tac_view=4&ti=19&pt=7&ch=247&rl=Y)  |

State Domains and Competencies:

DOMAIN I—DESIGNING INSTRUCTION AND ASSESSMENT TO PROMOTE STUDENT

LEARNING

**Competency 002**

The teacher understands student diversity and knows how to plan learning experiences and design assessments that are responsive to differences among students and that promote all students’ learning.

**Competency 004**

The teacher understands learning processes and factors that impact student learning and demonstrates this knowledge by planning effective, engaging and appropriate assessments.

DOMAIN III—IMPLEMENTING EFFECTIVE, RESPONSIVE INSTRUCTION AND ASSESSMENT

**Competency 007**

The teacher understands and applies principles and strategies for communicating effectively in varied teaching and learning contexts.

DOMAIN IV – FULLFILLING PROFESSIONAL ROLES AND RESPONSIBILITIES

**Competency 11**

The teacher understands the importance of family involvement in children’s education and knows how to interact and communicate effectively with families.

**Competency 12**

The teacher enhances professional knowledge and skills by effectively interacting with other members of the educational community and participating in various types of professional activities.

**Competency 13**

The teacher understands and adheres to legal and ethical requirements for educators and knowledgeable of the structure of education in Texas.

***Science Generalist EC-6 Standards***

1. The science teacher manages classroom, field, and laboratory activities to ensure the safety of all students and the ethical care and treatment of organisms and specimens.
2. The science teacher understands the correct use of tools, materials, equipment, and technologies.
3. The science teacher understands the process of scientific inquiry and its role in science instruction
4. The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.
5. The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.
6. The science teacher understands the history and nature of science.
7. The science teacher understands how science affects the daily lives of students and how science interacts with and influences personal and societal decisions.
8. The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in life science.
9. The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in life science.
10. The science teacher knows and understands the science content appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in Earth and space science.
11. The science teacher knows unifying concepts and processes that are common to all sciences.

***ACEI/NCATE Standards***

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| ***ACEI/NCATE - Standard 3a***  | ***Integrating and applying knowledge for instruction***Candidates plan and implement instruction based on knowledge of students, learning theory, subject matter, curricular goals, and community. |
| ***ACEI/NCATE – Standard 3b*** | ***Adaptation to Diverse Students***Candidates understand how elementary students differ in their development and approaches to learning, and create instructional opportunities that are adapted to diverse students. |
| ***ACEI/NCATE-******Standard 3c*** | ***Development of critical thinking, problem solving and performance skills***Candidates understand and use a variety of teaching strategies that encourage elementary students' development of critical thinking, problem solving, and performance skills. |
| ***ACEI/NCATE – Standard 3d*** | ***Communication to foster learning***Candidates use their knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the elementary classroom. |
| ***ACEI/NCATE – Standard 5a*** | ***Practices and behaviors of developing career teachers***Candidates understand and apply practices and behaviors that are characteristic of developing career teachers. |
| ***ACEI/NCATE – Standard 5b*** | ***Reflection and evaluation***Candidates are aware of and reflect on their practice in light of research on teaching and resources available for professional learning; they continually evaluate the effects of their professional decisions and actions on students, parents, and other professionals in the learning community and actively seek out opportunities to grow professionally. |
| **ACEI/NCATE -*****Standard 5d*** | ***Collaboration with colleagues and the community***Candidates foster relationships with school colleagues and agencies in the larger community to support students’ learning and well-being. |

***Learning Outcomes:***

**The general structure of this course engages students in active, inquiry-based science experiences that serve the purposes of a) learning to use best science/health teaching practices according to state and national standards, b) translating science/health concepts into meaningful learning experiences and readily usable curricula for all of the early childhood through elementary school students, and c) developing healthy and physically educated citizens to enjoy their lives. The specific goals of this course are as follows.**

1. To gain understanding of the *nature of science*, the *purpose of education*, and the *nature of learners* so we may be prepared to teach, and to help students learn in a way that is consistent with the discipline of science and with how children learn.
2. To gain understanding of the unique qualities of elementary school students, in terms of intellectual, social and emotional development, so we may be better to prepared to accommodate to their learning needs.
3. To develop in-depth knowledge of the National Science Education Standards and Texas Essential Knowledge and Skills Science Standards (TEKS) and apply these standards in preparing high quality teaching and learning experiences for elementary school students.
4. To gain experience in critically analyzing science content, lessons and curricula, and science education literature (research articles, practitioner articles, Internet sites), for the selection and/or modification of appropriate and meaningful learning experiences for elementary school students.
5. To construct and present original standards-based, inquiry (5E learning cycle) curricula for elementary school students based on science activities abstracted from various sources including texts, laboratory books, and the Internet; and in these lessons, effectively incorporate attention to diversity, authentic assessments, elementary school children’s intellectual, social and emotional development, integration with other school subjects, and technology.
6. To practice-teach, critique, reflect upon, and revise originally developed inquiry-based, standards-based curricula for elementary school students for the improvement of teaching effectiveness.
7. To increase awareness of resources available to teaching professionals by participating in professional organizations and/or informal science educational opportunities.
8. To develop physically educated students who have the knowledge, skills, and confidence to enjoy a lifetime of healthful physical activities.
9. To acquire the health information and skills necessary to become healthy citizens.
10. To identify and describe low socio-economic status populations who are underserved and inhibit the socio-economic factors that have prevented services for low-income children who have had inadequate leaning opportunities.

***University Mission:***

The mission of The University of Texas at Arlington is to pursue knowledge, truth and excellence in a student-centered academic community characterized by shared values, unity of purpose, diversity of opinion, mutual respect and social responsibility. The University is committed to lifelong learning through its academic and continuing education programs, to discovering new knowledge through research and to enhancing its position as a comprehensive educational institution with bachelor’s, master’s, doctoral and non-degree continuing education programs.

***College Mission:***

The mission of the UTA College of Education is to develop and deliver educational programs that ensure the highest levels of teacher, administrator, and allied health science practitioner preparation and performance. As a recognized contributor to the fields of education and allied health science, the College engages in effective teaching, quality research, and meaningful service.   The College is committed to diversity and to the advancement of active teaching and learning in all educational environments and at all levels.

Core Values:

* Effective teaching
* Active learning
* Quality research
* Meaningful service

***College Conceptual Framework:***

The work of the College of Education is grounded in constructivism as a theory of teaching and learning and is done in a spirit of expectation that all involved in the College of Education, whether candidate, faculty or administrator, will hold the following as important:  **Excellence, Student-Centered Environments, Research, Collaboration, Diversity, Technology, Field Experiences and Life-Long Learning.**

*Partners for the Future* serves as the theme of the College of Education and Health Professions and epitomizes the understanding that it takes a village of partners to insure the future of education for all.



***University Policies:***

**Expectations for Out-of-Class Study:**

Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 6 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

**Grade Grievances:**

Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current undergraduate / graduate catalog. <http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10>

**Drop Policy:**

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/ses/fao>).

**American with Disabilities Act (ADA):**

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:**

All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

Academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form at The University of Texas at Arlington. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.  “Academic 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 examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2., Subdivision 3.22).

**Student Support Services:**

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Student Feedback Survey:**

At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Electronic Communication:**

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>

**Final Review Week:**

A period of five class days prior to the first day of final examinations n the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. Classes are held as scheduled during this week and lectures and presentations may be given.

**Emergency Exit Procedures:**

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

<https://www.uta.edu/policy/procedure/7-6>

**Incomplete Work:**

In the case of incomplete work, a grade of “I” can be awarded **only** in the event of serious circumstances that prevent completing all work.

**Medical Reimbursement:**

University students will be responsible for their own transportation, meals, and health care while participating in the field-based program.

* University students bear the burden of any expenses incurred in conjunction with injuries that may occur during field based classes/components, internship, and residency.
* The University will not reimburse the student for any expenses related to injuries or illness.

**UTA Writing Center:**

• Professionally trained tutors offer help with writing projects at any stage of the process at no cost to UTA students (http:www.uta.edu/owl/).

**Librarian to Contact:**

* Andy Herzog, amherzog@uta.edu

***Departmental Policies:***

**Commitment to Diversity:**

• In our commitment to furthering of knowledge and fulfilling our educational mission, the College of Education at UTA seeks a campus climate that welcomes, celebrates, and promotes respect for the entire variety of human experience.

• In our commitment to diversity, we welcome people from all backgrounds.

• We seek to include knowledge and values from many cultures in the curriculum.

• Dimensions of diversity shall include, but are not limited to the following: race, ethnicity, religious belief, sexual orientation, sex/gender, disability, economic status, cultural orientation, national origin and age.

**General Policies:**

* The professor is available for telephone, e-mail or face-to-face conferences as the need arises. **It is your responsibility to solicit help from the instructor.** This s to be done *before* problems affect your grade – not after.
* The professor reserves the right to make changes in the syllabus as deemed necessary. Students will be notified of any changes.
* All borrowed material must be returned before a final grade will be reported to the university.
* Conduct yourself professionally and ethically as described by the Texas Administrative Code – Educator’s Code of Ethics
* **Do not underestimate the importance of the above requirements.** Earning a grade of “A” for this course requires more than earning “A’s” on all assignments; it additionally requires a demonstration of professional behaviors.
* Courses are for persons registered in the class. Visitors and **children are not permitted in class**. You are responsible for finding appropriate child care.

**Communications**:

* UTA is the official mode of communication for UTA.
* For questions related to the course requirements, assignments, or exams post your questions on the course Q & A Discussion Board on Blackboard.
* For questions related to grades or other questions that are personal in nature, please use the email function within Blackboard. This will come directly to my UTA email account.
* During the week you will receive a response within 24 hours from your instructor. On the weekends, expect to wait 48 hours for a response.
* All official course information and announcements will be posted on the announcement page in Blackboard.
* For questions related to using Blackboard, review the tutorial, look on the Student Resources Page or email the Help Desk at helpdesk@uta.edu.

**Electronic Devices:**

* As a courtesy to your instructor and your classmates, please silence electronic devices such as cell phones, computers and pagers.
* Texting will not be tolerated.
* Cell phones should be on ‘silent’ and vibrating feature should be turned off. A vibrating phone on a desk makes noise.
* Non-course related Internet surfing will not be tolerated
* Internet use is strictly limited to class discussions.

***EC- 6 Program Policies:***

**Attendance:**

* Class absences are not classified as "excused" or "unexcused" as per the EC-6 Program Policy.
* Candidates who miss more than **one** class meeting will have their final grade dropped by one letter.  Each absence thereafter will also reduce the final grade by one letter (i.e. 3 absences will drop the final grade 2 letters) as per the EC-6 Program Policy.
* Three tardies (or leaving the class before class is concluded or a combination thereof) will equal one absence as per the EC-6 Program Policy.
* Class begins promptly at the designated start time and ends when dismissed by the instructor.
* Attendance is a strong indication of your commitment and professionalism; therefore, attendance will be taken and absences will be seriously considered when assigning final grades. You are expected to be on time and remain engaged during the entire class.
* *It is your responsibility to sign in* before leaving class. If your leave class and did not sign in, you may not e-mail or phone to confirm your attendance. If you do not sign in, you will be counted absent.

**Preparation:**

* In order for you to maximize the learning opportunities available on and off-campus, it is necessary that you come prepared, including having read and reflected on the required readings for each and every class. Reading assignments are important and enable students to examine beliefs, explore theories, and debate ideas with fellow students and instructor.

**Participation:**

 Class participation includes but is not limited to:

* Being prepared for class (reading all assignments and having assignments ready to turn in at the beginning of class. Lack of participation gives the appearance of lack of interest and/or preparation.
* Participating in discussions both whole class and small group
* Being mentally engaged in the class lectures as well as discussions. With this requirement, students who choose to use laptop computers in class are to use them for taking notes of lecture and discussion(s).
* Answering e-mail, “surfing the web”, working on assignments for other classes on laptops during class does not demonstrate appropriate participation effort and participation grade may be affected.
* “Texting” is not appropriate during class. Your participation grade will be affected if you choose to “text” during class.
* One way we show respect is to not talk while others (the professor or fellow students) are talking. If you have difficulty demonstrating respect to the class members, your participation grade will be affected. This includes talking during demonstrations, presentations, or videos. You are expected to add depth to discussions at each meeting at the appropriate time.
* You have chosen a profession that requires a commitment to timeliness, responsibility, cooperation, teamwork, prior planning, above average writing and speaking skills, and an attitude of respect for learners with different needs, colleagues and mentors.
* Due to liability issues, consideration for other students, and developmental appropriateness, visitors and children are not permitted in class. (Guest speakers are an exception.)

**Assignments and Assessments:**

* All assignments should be submitted via the Blackboard course webpage.
* All assignments should be submitted with the designated title of the assignment.
* All assignments should be submitted using APA formatting guidelines and a cover sheet including the following: Student’s Name

 Assignment Name

 University of Texas at Arlington

 Dr. Jiyoon Yoon

 Date

 Academic Honesty Statement (below)

* Teachers must speak and write effectively; therefore, all written assignments must be in good form. Check your spelling and proofread. Points will be deducted for inappropriate content and form. As teachers, we encourage students to edit the work of classmates prior to submitting for a grade.
* Assignments submitted after the designated date and time are considered late. The instructor will deduct 10% of the value of the assignment for each day it is late.
* All assignments are due before the scheduled final examination for the course. Assignments submitted during or after the final examination will not be graded or considered in the final course grade.
* Candidates are required to attach and sign the program academic integrity statement with each assignment submitted for a course requirement.
* The university’s final exam schedule is available on the university web-site prior to the beginning of the academic year. Candidates are required to take the final examination for this course on the scheduled date and time.

**Grades and Learning**:

* **No** extra credit work will be given.
* Because learning is important you may be asked to reconsider and/or amend assignments completed that do not demonstrate an effective level of growth on your part.
* You will not be allowed to resubmit work that earned a low grade because the directions were not followed.

**Concerns:**

* Should problems or concerns arise, it is your responsibility to solicit help.
* This is to be done before problems affect your grade – not after.

**Video Recording**

* Students may record the lecture in auditory form and make notes from the recordings for their personal use only.  Many cell phones have video capability but video recording is not permitted as the professor and students have not given express written consent to be videoed.  (Anyone appearing in such a video would have to give written consent to having her/his image displayed in any manner.) Students may not transmit, copy, or reproduce recordings in any format or share recordings or transcriptions with others.

**Academic Honesty Statement:**

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| The following statement is to be included on the cover page of each written assignment submittedfor credit in all ELED course. For assignments submitted electronically, the candidate’s name may be word-processed on the signature line. The posting of the statement with the candidate’s name through the candidate’s email, Blackboard, or TK-20 account t is recognized as the candidate’s signature.**\*\*\*\*\*\*\*\*\*\*****On my honor, I have neither given nor received aid on this assignment. I acknowledge that misrepresenting another’s work as my own is a violation of the UTA Academic Integrity Policy.** **I have not submitted the attached work as an assignment for any other course or field activity.** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** **Signature Date** |

**Professional Dispositions:**

***Each student/candidate in the College of Education and Health Professions of UT Arlington will be evaluated on Professional Dispositions by faculty and staff. These dispositions have been identified as essential for a highly-qualified professional. Instructors and program directors will work with students/candidates rated as “unacceptable” in one or more stated criteria. The student/candidate will have an opportunity to develop a plan to remediate any digressions.*** College of Education and Health Professions, approved 2/2013; Adopted by UTeach Program 3/2013.

The full document regarding dispositions is posted in Blackboard.

***Late Work:***

Complete all assignments by the due dates. The final due date for each session can be found in the schedule and the assignment table on BB. After the due date, assignments are considered late but may be turned-in for partial credit at the discretion of the instructional team. To be clear, **late work** is discouraged and subject to a penalty of a 25% deduction of your total earned points for the assignment. **Late work is not accepted for the last assignment.** Please do not wait until the last minute to submit your work and then realize that because of a technical (or other type) problem you are unable to submit your work on time. If you have problems uploading assignments, you should contact helpdesk@uta.edu. Again, emailed work will NOT be accepted. All work for this course must be submitted on BB and TK 20.

***Course Assignments:***

*Group Science Lesson Presentation based on 5Es (30pts):*

* Rationale: Science lesson presentation is for improving your classroom experiences as a science and health teacher and for sharing your ideas with your colleagues. You can choose a topic for science lesson from the textbooks and build your own lesson plan based on 5Es. All of your laboratory experiences must be related to real life. The lesson plan format with 5Es will be presented in the class and on the Blackboard.
* Steps to do: In group (2 members in a group), develop a science lesson based on 5Es and post the lesson plan on BB (20points); b) present the lesson to the class for 15 minutes (5points); c) post a reflection (5points) after the presentation on the discussion board of the Blackboard.

*Community Science News Paper (10pts):*

* After visit community science or participate in a science education conference, post your KWL on linoit.com (<http://en.linoit.com/>) with at least one photo.

*Musical Concert (30pts):*

* Rationale: Through this activity, you are able to a) practice the guided inquiry-based teaching method; b) understand the scientific principles of how things work integrating with other subjects; c) think creatively about the world around them; and d) develop practical solutions to everyday problems.
* Steps to do: In group (same group with the lesson/the unit), a) develop a story based on the topic of the unit; b) create a script (Duration is about 10 -15 minutes); c) add science songs/music; d) use technology for the stage background and background music/sound; e) play and record the musical; and f) upload it on Youtube (Uploading instruction https://support.google.com/youtube/topic/2888648?hl=en&ref\_topic=16547).
* Contents for the script: a) Purposes of the musical; b) science concepts in the musical; c) casts; d) plot; e) script lines categorized by scenes; f) stage setting (including what kind of technology is used)

*Individual Instruction Strategy Research on TK20 (20pts)*:

* Rationale: With the effective lesson presentation with groups and learning through this class, you can have skills and knowledge to combine and adapt variety of resources/learning and create your own ways to teach science for your own classroom. This individual instruction strategy research will show all the best knowledge and skills that you have achieved through the semester.
* Steps to do: a) Discuss with your cooperative teacher about what issue(s) you need to solve in your class and what topic(s) of science and with what strategies you will teach science (if you do not have a chance to teach science during practicum, then you can choose any topic on your own); b) Create your Lesson plan based on the lesson plan format (you will have this on BB); c) review the lesson plan with your cooperative teacher; d) Teach the lesson to your class or at least one student; and e) Post your research with the lesson on TK20.
* Contents for the Research: a) Title; b) Problems (issues); c) Solutions (Strategies); d) Method (participants, Procedure, Lesson plan, & Assessment); e) Results; f) Summary & Conclusions.

*Attendance/Group Participation (20pts):*

* Rationale: By assessing your progress not only by the assignments after class but also during class, your performance can be evaluated more accurately.
* Rubrics:
* Class Attendance (6 points)

Whenever you are absent (in class and in practicum), you are going to lose 2 points. If you miss more than 3 days you are required to repeat the course. For a making-up, you need to provide: a) a proof that shows your reasons why you are absent. When you need to be absent because of your family or health, you have to provide doctor's statement or any other proof. Otherwise, you cannot have any chance to make up the class, assignment, and test; and (b) a 5 page-long, double spaced paper about what you learned related to science education during your being absent. But if you miss more than 3 days you are required to repeat the course.

* Activity Participation (14 points)

You need to prepare yourself for the class. When you do not respond to the requests asked by the instructor, you are going to lose 1 pt. You are expected actively to engage in all the class activities. The instructor will have a checklist for your progress during the class. When you are not actively engaged, you will you will loose points.

Also, this class is asking at least two class discussions on BB discussion board: 16 trends & after conference/workshop participation

***Grade Calculation:***

**Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Point Maximum** | **Assessment** | **ACEI/NCATE Standards** | **Generalist EC-6 Standards** | **Due** |
| 20 | Attendance/Group Participation | 3a, 3b, 3c, 5a, 5b, & 5d | I, II, III, IV, V, VI  |  |
| 10 | Community Science News Paper | 3a, 3b, 3c, 5a, 5b, & 5d | VI, VII, VIII, IX, X, XI | March 20th  |
| 30 | Group Science Lesson Presentation with 5Es | 3a, 3b, 3c, 5a, 5b, & 5d | I, II, III, IV, V, VIII, IX, X, XI | April 10th & 17th  |
| 20 | Musical Concert | 3a, 3b, 3c, 5a, 5b, & 5d | III, IV, VIII, IX, X, XI | May 1st  |
| 20 | *Individual Instruction Strategy Research* | 3a, 3b, 3c, 5a, 5b, & 5d | I, II, III, IV, V, VIII, IX, X, XI | May 3rd  |
| **Total 100 Points** |  |  |  |  |

Final numerical valuations relate to letter grades and points as follows:

**A = 93 – 100% (100-93 points)
B = 85 – 92% (92-85 points)
C = 77 – 84% (84-77 points)
D = 70 – 76% (76-70 points)
F = Below 70% (69 points and below)**

***Tentative lecture/topic schedule***:

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.In order to facilitate the needs of students in the classroom, additional materials and/or assignments will be added based on feedback and assessments made throughout the semester. These assignments will be posted on Blackboard and announced during class.

|  |  |  |
| --- | --- | --- |
| Class MeetingFriday | Topic | **Assignment** |
| Class 1**1/16** | Who are we? * Introductions
* Attitude test
* Expectations – Drawing/writing a letter
* [16 trends](http://staffdev.henrico.k12.va.us/la/files/16%20trends.pdf)
 | Discussion Board on BB-[16 trends](http://staffdev.henrico.k12.va.us/la/files/16%20trends.pdf) |
| Class 2**1/23** | How much science does a science teacher need to know? * Definition of Science
* History of science education
* Characteristics of Science
* Measurement Systems
* Non-experimental/experimental design
 | Reading: Chapter 1 (Marek, E.A. & Cavallo, A.M., 1997). [Nature of Science](http://www.project2061.org/publications/sfaa/online/chap1.htm)[Timeline of Science Education History](http://hechingerreport.org/content/timeline-important-dates-in-u-s-science-education-history_5063/)[Characteristics of Science](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0CFIQFjAD&url=http%3A%2F%2Fwww.angelo.edu%2Ffaculty%2Fcadkins%2FAnatIntroFall05.doc&ei=vQoUUr6IB-Kf2QXC_oHYBw&usg=AFQjCNGjqA54rksumWm6MSGsfDX1yeqDYw&sig2=6UOnjrTpRwROP0dRomy2uQ&bvm=bv.50952593,d.b2I)[Teaching Science Process Skills](http://www.longwood.edu/cleanva/images/sec6.processskills.pdf) |
| Class 3**1/30** | How can you be an inquiry-based science teacher? * Inquiry
* Questioning
* Bloom's Taxonomy
* Creative Problem Solving
* Being a scientist
 | Reading: Chapter 2, 4, & 6 (p128-134)[Harwood, W. S. (2004). A new model for Inquiry by William S. Harwood, Journal of College Science Teaching, Vol. 33. No 7.](http://tab-sa.org/cd2012/00%20Science/Alison%20-%20Matter%20and%20Materials/Teacher%20Reference%20Document%20--%20Activity%20Model%20of%20Scientific%20Inquiry.pdf)[Osborn: Creative Problem Solving Process](http://www.idea-sandbox.com/destination/2007/10/osborn-creative-problem-solving-process/) |
| Class 4**2/6** | How do you plan a lesson?* Misconception
* Discrepant Events
* 5Es
* FOSS
* National & State Standards (NSES/NGSS/NHES/NSPE/ TEKS)
* Lesson Planning
 | Reading Chapter 5 (105-115) & 8[TEKS-Science](http://ritter.tea.state.tx.us/rules/tac/chapter112/ch112a.html)[NSES](http://www.nap.edu/openbook.php?record_id=4962)[Misconception in Science](http://dese.mo.gov/divimprove/curriculum/science/SciMisconc11.05.pdf)[Use of Discrepant Events](http://repository.nie.edu.sg/jspui/bitstream/10497/1546/1/TL-13-1-51.pdf)[FOSS](http://www.fossweb.com/) |
| Class 5**2/13** | How can you take care of diverse science learners? * Understanding Intellectual Development and Qualities of Elementary Children
* Multiple intelligence
* Multiculturalism
* Gender awareness
* Low SES status students
* Parent involvement
* AAC Device
* Diverse/Multicultural Lesson
* Physical Health Education Lesson
 | Reading: Chapter 3[Worldwise School](http://www.peacecorps.gov/wws/%22%20%5Ct%20%22_blank) [Flat Stanley Project](http://www.flatstanleyproject.com/%22%20%5Ct%20%22_blank) [Science Classrooms for Students With Special Needs](http://files.eric.ed.gov/fulltext/ED433185.pdf) [400 years of women in Science](http://www.astr.ua.edu/4000WS/newintro.html%22%20%5Ct%20%22_blank)[Steve Spanglerscience](http://www.stevespanglerscience.com/%22%20%5Ct%20%22_blank)[World Map](http://www.lib.utexas.edu/maps/world.html%22%20%5Ct%20%22_blank)[Enhancing the communication skills of newly-arrived Asian American students](http://www.ericdigests.org/1999-1/asian.html%22%20%5Ct%20%22_blank)[Methods for communicating with Parents](http://www.adi.org/journal/ss05/Graham-Clay.pdf)[National PTA Standards](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCQQFjAA&url=http%3A%2F%2Fjohnwgardnertestsite.pbworks.com%2Ff%2FS3%2BTool%2B-%2BNational%2BStandards%2Bfor%2BParent%2BInvolvement.doc&ei=2fQnT83WCOfi2QXDlJXpAg&usg=AFQjCNEsOwTS_RIEmQpSrynkYcBKNJQdKQ" \t "_blank)[Parent Involvement](http://masspta.org/files/legislative/nclbRecommendations.pdf) |
| Class 6**2/20** | What is an interdisciplinary approach? * STS
* Integration of other subjects (health education, social studies, math, language art, music, and so on)
* Paper Window (Art & Music)
* Musical Concert (Song, tech for stage)
* Science Song Contest

Guest Speaker Dr. Larry Nelson (Physical Education) | Reading: Chapter 5 (115-127) & Integrating Text Chapter 2 (Hammerman & Musical) [Case studies of Multidisciplinary Approach](http://scholar.lib.vt.edu/ejournals/JTE/v6n2/pdf/wicklein.pdf)[Meaning of integration of Science and Math](http://www.project2061.org/publications/designs/online/pdfs/reprints/8_davisn.pdf)[Ten Ways to Integrate](http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_199110_fogarty.pdf)[STS](http://go.hrw.com/resources/go_sc/gen/HSTPR001.PDF) |
| Class 7**2/27** | Population workshopBeing a ScientistPuzzling Lesson Plan  | [Galileo Project](http://galileo.rice.edu/)[King Sejong, The Great](http://www.koreanhero.net/kingsejong/) |
| Class 8 **3/6** | How can you use technology to teach science? * Science education software
* NETS for Teachers
* Evaluating Effective Educational Technology
* Motion detector and TI-84 graphing
* SmartBoard/iPad
* Social Network
* Cyberbulling (low SES students)
 | Reading: Chapter 6 (134-140)[Educational Technology with Early Learners](http://www.naeyc.org/yc/files/yc/file/201205/McManis_YC0512.pdf)[Learning with Technology](http://www.dcmp.org/caai/nadh176.pdf)[Evaluating effective educational technology](http://www.act.org/research/policymakers/pdf/school_tech.pdf)[National Educational Technology Standards for Teachers](http://www.iste.org/standards/nets-for-teachers)[Instructional Technology in Science](http://scimathmn.org/stemtc/resources/science-best-practices/instructional-technology-science)[Science iPad Apps](http://appsineducation.blogspot.com/p/science-ipad-apps.html)[Cyberbullying Research Summary](http://www.cyberbullying.us/cyberbullying_and_suicide_research_fact_sheet.pdf) |
| **3/13** | Spring Break |  |
| Class 9**3/20** | Community Science – [Track of dino at Glen Rose, TX](http://www.wfaa.com/news/local/Scientist-dig-deeper-into-dino-tracks-in-Glen-Rose-166911036.html), FWMSH, Perot Museum, or any community science place)  | Science News Paper with KWL (What I know; What I want to learn; What I learned)  |
| Class 10**3/27** | How do you assess your science classroom? * Assessment
* Concept Map
* [STAAR](http://www.tea.state.tx.us/student.assessment/staar/ac/)
 | Reading: Chapter 7 & & Integrating Text Chapter 3 (Hammerman & Musical)[Assessment in Science Education](http://www.nap.edu/openbook.php?record_id=4962&page=75)[Using Concept maps](http://www.cmu.edu/teaching/assessment/assesslearning/conceptmaps.html)[Authentic Assessment](http://www.jcu.edu/education/dshutkin/ed587/articles/Authentic_assessment.pdf) |
| Class 11**4/3** | How do you manage your science classroom? * Classroom Management techniques
* Safety
* Maslaw’s Hierarchy of Needs
* Meeting diverse need of students (special and low SES students)
 | Reading: Chapter 6 (137-140) [Classroom Management Techniques](http://www2.uwstout.edu/content/lib/thesis/2002/2002kaliskap.pdf)[Effective Classroom Management](http://ptgmedia.pearsoncmg.com/images/9780137082117/downloads/Jones-ch01.pdf)[Safety](http://www.flinnsci.com/Sections/Safety/safety.asp%22%20%5Ct%20%22_blank)[TEA Safety Standards & Laws/Rules](http://www.tea.state.tx.us/index2.aspx?id=5483)[Discipline & Safety](http://www.ibtimes.com/kiera-wilmot-expelled-scientists-teachers-outraged-harsh-punishment-teens-experiment-accident) [Classroom Management](http://www.ipl.org/div/pf/entry/48536#management)[Research on Closing the achievement between high & low SES students](http://bdgrdemocracy.files.wordpress.com/2011/08/ses_overview.pdf) |
| Class 12**4/10** | Group Science Lesson Presentation - I | Group Science Lesson Plan |
| Class 13**4/17** | Group Science Lesson Presentation - II | Group Science Lesson Plan |
| Class 14**4/24** | CAST (conference for the Advancement of Science Teaching) or any other science conference/workshop  | Discussion Board – after Conference, workshop, or Webinar |
| Class 15**5/1** | Musical Contest | Submit your group video of the musical  |
| Class 155/3 | Final –Individual Instruction Strategy Research (on TK20) |  |

***Recommended Readings:***

Ashbrook. (2011). Ongoing Inquiry, Science and Children, 22-24

Banchi & Bell (2008). The Many Levels of Inquiry, Science and Children, 26-29.

Buttemer (2006). Inquiry on Board, Science and Children, pp. 34-39,

Campbell and Williams-Rossi. (2012). The Way They Want to Learn, The Science Teacher, pp. 52-56

Coffey, J., Douglas, R., & Stearns, C. (2008). *Assessing Science Learning; Perspectives from research and practice*. National Science Teachers Association: NSTApress.

Corder & Slykhuis. (2011). Shifting to an Inquiry Experience, Science and Children, 60-63

Duschl, R.A. & Grandy, R.E. (2008). *Teaching scientific inquiry; Recommendations for research and implementation.*  AW Rotterdam, The Netherlands: Sense Publishers

Everett & Moyer. (2009). Literacy in the Learning Cycle, pp. 48-52

Harwood, W. S. (2004). A new Model for Inquiry by William S. Harwood, Journal of College Science Teaching, Vol. 33. No 7.

Larwa. (2001). Rice is Rice. Right?, Science and Children, pp. 24-27.

Llewellyn, D. (2007), 3rd Ed. *Inquire within; Implementing inquiry-based science standards in grades 3-8*. Thousand Oaks, CA: Corwin Press.

Lott. (2011). Fire up the Inquiry, Science and Children, 29-33.

Martin-Hansen & Johnson. (2006). Think-Alouds in Inquiry Science, Science and Children, pp. 56-59.

Roth, W-M. (1996). Teacher Questioning in an Open-Inquiry Learning Environment: Interactions of

 Context, Content and Student Responses. *Journal of Research in Science Teaching, 33* (7): 709-736.

Sandifer. (2011). Inquiry Science and Active Reading, , Science and Children, pp. 47-51

Simpson. (2010). Personalized Inquiry, Science and Children, 36-39.

Subramaniam. (2010). Clash of the Titans, , Science and Children, 38-43

Tilgner, P. (1990). Avoiding Science in the Elementary School. *Science Education* 74 (4): 421-431.

West, S. (2010). Analysis of Descriptive, Comparative and Experimental Scientific Research Designs in the TEKS, The Texas Science Teacher, Vol 39, No. 1.

Zenchak & Lynch. (2011). What’s the Next Step?, Science and Children, pp. 50-54

Library Home Page [http://www.uta.edu/library](http://www.uta.edu/library%22%20%5Ct%20%22_blank)

Subject Guides [http://libguides.uta.edu](http://libguides.uta.edu" \t "_blank)

Subject Librarians [http://www.uta.edu/library/help/subject-librarians.php](http://www.uta.edu/library/help/subject-librarians.php%22%20%5Ct%20%22_blank)

Database List [http://www.uta.edu/library/databases/index.php](http://www.uta.edu/library/databases/index.php%22%20%5Ct%20%22_blank)

Course Reserves [http://pulse.uta.edu/vwebv/enterCourseReserve.do](http://pulse.uta.edu/vwebv/enterCourseReserve.do%22%20%5Ct%20%22_blank)

Library Catalog [http://discover.uta.edu/](http://discover.uta.edu/%22%20%5Ct%20%22_blank)

E-Journals [http://liblink.uta.edu/UTAlink/az](http://liblink.uta.edu/UTAlink/az%22%20%5Ct%20%22_blank)

Library Tutorials [http://www.uta.edu/library/help/tutorials.php](http://www.uta.edu/library/help/tutorials.php%22%20%5Ct%20%22_blank)

Connecting from Off- Campus [http://libguides.uta.edu/offcampus](http://libguides.uta.edu/offcampus%22%20%5Ct%20%22_blank)

Ask A Librarian [http://ask.uta.edu](http://ask.uta.edu/%22%20%5Ct%20%22_blank)

The following URL houses a page where we have gathered many commonly used resources needed by students in online courses: [http://www.uta.edu/library/services/distance.php](http://www.uta.edu/library/services/distance.php%22%20%5Ct%20%22_blank)

Finally, the subject librarian for your area can work with you to build a customized course page to support your class if you wish. For examples, visit [http://libguides.uta.edu/os](http://libguides.uta.edu/os%22%20%5Ct%20%22_blank) and [http://libguides.uta.edu/pols2311fm](http://libguides.uta.edu/pols2311fm%22%20%5Ct%20%22_blank). If you have any questions, please feel free to contact the Coordinator for Information Services, Suzanne Beckett, at sbeckett@uta.edu or at 817.272.0923.