**EDME 4900.001**

**Special Topics Science in Grades 4-8**

**Summer 2018**

Instructor’s Name: **Dr. Christopher Long**

Location of Class: Internet Course

Instructor’s Office: Matthews Hall 218S

Office Hours: **Mondays, 10:00 -12:00 via Zoom**

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**Course Description**

Subject matter background and material organization for an integrated science program in the upper-elementary and middle school. Students experience first-hand the scope and sequence of science education. Assignments, directed field experience, and other class activities take place on site in an upper-elementary or middle school setting.

**Goals and Outcomes**

Upon successful completion of the course activities students will be able to

1. Demonstrate an understanding of the true nature of science (NOS).
2. Demonstrate an in-depth understanding of a major conceptual area in science.
3. Plan, develop, and implement inquiry-learning activities that follow accepted practice of inquiry-based science in the 5E format.
4. Select (and adapt if necessary) activities and lessons from various resources to an appropriate style and sequence based on science education research.
5. Understand the thoughts and actions of new science teachers.
6. Evaluate and establish a positive science classroom learning environment.
7. Discuss various science, engineering and societal issues.
8. Understand diverse adolescent learners, equity, and differentiated instruction.
9. Promote and maintain safety in the laboratory and the classroom.

**Science TEKS**

* 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.
* The science teacher understands the correct use of tools, materials, equipment, and technologies.
* The science teacher understands the process of scientific inquiry and its role in science instruction.
* The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.
* The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.
* The science teacher understands the history and nature of science.
* The science teacher knows and understands the science content appropriate to teach the statewide curriculum [TEKS] in physical science.
* The science teacher knows and understands the science content appropriate to teach the statewide curriculum ([TEKS] in life science.
* The science teacher knows and understands the science content appropriate to teach the statewide curriculum ([TEKS] in Earth and space science.

**Pedagogy and Professional Responsibility Standards (PPR)**

* Knows and understands the importance of the state content and performance standards as outlined in the TEKS.
* Uses the TEKS to plan instruction.
* Knows and understands the importance of designing instruction that reflects the TEKS through Grade 6.
* Plans instructional activities that progress sequentially and support stated instructional goals based on the TEKS through Grade 6.
* Knows the connection between the statewide Texas assessment program, the TEKS through Grade 6, and instruction.
* Standard I: Domain I: Competency 001-004 Domain III: Competency 007-010: The teacher designs instruction appropriate for all students that reflects an understanding of relevant content and is based on continuous and appropriate assessment.
* Standard II: Domain II: Competency 005-006: The teacher creates a classroom environment of respect and rapport that fosters a positive climate for learning, equity and excellence.
* Standard III: Domain III: Competency 007-010: The teacher promotes student learning by providing responsive instruction that makes use of effective communication techniques, instructional strategies that actively engage students in the learning process and timely and high-quality feedback.
* Standard IV: Domain IV: Competency 011-013: The teacher fulfills professional roles and responsibilities and adheres to legal and ethical requirements of the profession.
* Technology Applications Standard I: Domain III: Competency 007-010: All teachers use technology-related terms, concepts, data input strategies and ethical practices to make informed decisions about current technologies and their applications.
* Technology Applications Standards II: Domain III: Competency 007-010: All teachers identify task requirements, apply search strategies and use current technology to efficiently acquire, analyze and evaluate a variety of electronic information.
* Technology Applications Standard III: Domain III: Competency 007-010: All teachers use task-appropriate tools to synthesize knowledge, create and modify solutions and evaluate results in a way that supports the work of individuals and groups in problem-solving situations.
* Technology Applications Standard IV: Domain III: Competency 007-010: All teachers communicate information in different formats and for diverse audiences.
* Technology Applications Standard V: Domain III: Competency 007-010: All teachers know how to plan, organize, deliver and evaluate instruction for all students that incorporates the effective use of current technology for teaching and integrating the Technology Applications Texas Essential Knowledge and Skills.

**Curriculum Topics**

* TEKS organization, structure, and skills: Domain I, III
* State assessment of students (STARR Responsibilities): Domain I, II, IV
* Curriculum development and lesson planning: Domain I, II, III
* Classroom assessment for instruction/diagnosing learning needs: Domain I, III
* Instructional technology: Domain I, III
* Pedagogy/Instructional strategies: Domain I, III, IV
* Differentiated instruction: Domain I, II, III, IV
* Classroom Management: Domain II, IV

**Materials**

Required Text: Science Instruction in the Middle and Secondary Schools, 8th edition. Chiappetta, Kobella.

Internet Resources:

1. TAKS and TEKS Information booklets: Scroll down to Science and select Grades 5 and 8. (download and print copies) [http://www.tea.state.tx.us/student.assessment/taks/booklets/index.html](http://www.google.com/url?q=http%3A%2F%2Fwww.tea.state.tx.us%2Fstudent.assessment%2Ftaks%2Fbooklets%2Findex.html&sa=D&sntz=1&usg=AFQjCNHPeqJT0wcUjUEmAkx46_8yz6BKqw)
2. University of Texas Dana Center. The Dana Center provides Texas education leaders with new knowledge about teaching and learning. We also support K–12 teachers and leaders working to implement high academic standards for all students. [http://www.utdanacenter.org/](http://www.google.com/url?q=http%3A%2F%2Fwww.utdanacenter.org%2F&sa=D&sntz=1&usg=AFQjCNFXuGymXKRIbY2xLLSsbAzhVpxTHQ)
3. Science Toolkit. Provide resources to help teachers implement the Texas Essential Knowledge and Skills (TEKS) and strengthen mathematics and science education in
4. Texas. [http://www.utdanacenter.org/sciencetoolkit/index.php](http://www.google.com/url?q=http%3A%2F%2Fwww.utdanacenter.org%2Fsciencetoolkit%2Findex.php&sa=D&sntz=1&usg=AFQjCNFv_OIrEZaSzya4L6kMvD2IPHRhaw)

**Expectations**

1. ATTENDANCE - Attend all classes, meetings, etc. arriving on time.
2. PREPARATION - Be prepared to discuss assigned readings and submit assignments according to established deadlines.
3. PARTICIPATION - Contribute constructively and respectfully to all discussions and activities.
4. RESPECT – Do not talk while the teacher or another presenter is speaking.
5. ACADEMIC HONESTY - Know and follow course, departmental, program and university policies on assignments and assessments.
6. PROFESSIONALISM - Know and follow departmental, program and university policies expected of PDS students.

Note: All policies and guidelines described in the UNT COE *Student Teacher Handbook* apply in this course. You are expected to be familiar with this information and follow all policies described in the handbook: [http://www.coe.unt.edu/fep/documents/handbook.pdf](http://www.google.com/url?q=http%3A%2F%2Fwww.coe.unt.edu%2Ffep%2Fdocuments%2Fhandbook.pdf&sa=D&sntz=1&usg=AFQjCNGOijQlaC9e-9vTqcduISFO4w8ORQ)

**Communication**

The official manner of communication outside of class meetings will by email\*. Students should activate and regularly (4-5 times weekly) check their email in WEBCT Vista. WEBCT Vista; [ecampus.unt.edu](http://www.google.com/url?q=http%3A%2F%2Feaglemail.unt.edu&sa=D&sntz=1&usg=AFQjCNF-IyoiVgwjip8m5wmbIrqK4nMqpQ). When sending email to me, use the following instructions:

1. Put EDME 4900 and sec. # in the Subject line of all email (I may not open it otherwise).
2. Clearly elaborate your question or concern.
3. Include your *full name* after the message.
4. When replying, always copy the original (or previous) message.
5. Email may or may not be responded to during the weekend.

(\*If it is very important, please send via regular email (in addition to WEBCT - thank you.)

**Assignments and Grading:**

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| --- | --- |
| **Assignment** | **Percentage of Grade** |
| Weekly Readings and Responses | 50% |
| Example Lesson | 25% |
| Final Exam | 25% |

A: 90 – 100%

B: 80 – 89%

C: 70 – 79%

D: 60 – 69%

F: < 60%



***The Educator as Agent of Engaged Learning:***

Improving the quality of education in Texas schools and elsewhere is the goal of programs for the education of educators at the University of North Texas. To achieve this goal, programs leading to teacher certification and advanced programs for educators at the University of North Texas 1) emphasize content, curricular, and pedagogical knowledge acquired through research and informed practice of the academic disciplines, 2) incorporate the Texas Teacher Proficiencies for learner centered education, 3) feature collaboration across the university and with schools and other agencies in the design and delivery of programs, and 4) respond to the rapid demographic, social, and technological change in the United States and the world.

**The educator as agent of engaged learning** summarizes the conceptual framework for UNT's basic and advanced programs. This phrase reflects the directed action that arises from simultaneous commitment to academic knowledge bases and to learner centered practice. "Engaged learning" signifies the deep interaction with worthwhile and appropriate content that occurs for each student in the classrooms of caring and competent educators. "Engaged learning" features the on-going interchange between teacher and student about knowledge and between school and community about what is worth knowing. This conceptual framework recognizes the relationship between UNT and the larger community in promoting the commitment of a diverse citizenry to life-long learning. In our work of developing educators as agents of engaged learning, we value the contributions of professional development schools and other partners and seek collaborations which advance active, meaningful, and continuous learning.

Seeing the engaged learner at the heart of a community that includes educators in various roles, we have chosen to describe each program of educator preparation at UNT with reference to the following key concepts, which are briefly defined below.

1. **Content and curricular knowledge** refer to the grounding of the educator in content knowledge and knowledge construction and in making meaningful to learners the content of the PreK-16 curriculum.
2. **Knowledge of teaching and assessment** refers to the ability of the educator to plan, implement, and assess instruction in ways that consistently engage learners or, in advanced programs, to provide leadership for development of programs that promote engagement of learners.
3. **Promotion of equity for all learners** refers to the skills and attitudes that enable the educator to advocate for all students within the framework of the school program.
4. **Encouragement of diversity** refers to the ability of the educator to appreciate and affirm formally and informally the various cultural heritages, unique endowments, learning styles, interests, and needs of learners.
5. **Professional communication** refers to effective interpersonal and professional oral and written communication that includes appropriate applications of information technology.
6. **Engaged professional learning** refers to the educator's commitment to ethical practice and to continued learning and professional development.

Through the experiences required in each UNT program of study, we expect that basic and advanced students will acquire the knowledge, skills, and dispositions appropriate to the educational role for which they are preparing or in which they are developing expertise.

A broad community stands behind and accepts responsibility for every engaged learner. UNT supports the work of PreK-16 communities through basic and advanced programs for professional educators and by promoting public understanding of issues in education.

*Ethical Behavior and Code of Ethics:* The Teacher Education & Administration Department expects that its students will abide by the Code of Ethics and Standard Practices for Texas Educators (Chapter 247 of the Texas Administrative Code www.sbec.state.tx.us) and as outlined in Domain IV: Fulfilling Professional Roles and Responsibilities of the Pedagogy and Professional Responsibilities (PPR) Texas Examination of Educator Standards (TExES); and as also addressed in codes of ethics adopted by professionals in the education field such as the National Education Association (NEA) and the American Federation of Teachers (AFT).

*Submitting Work:* All assignments will be submitted via Blackboard Learn. Assignments posted after the deadline will be considered late and points will be deducted from the final grade.

*Grading and Grade Reporting:* Grading rubrics for all assignments can be found on the course Blackboard Learn website with the assignment. Students are encouraged to review the grading rubrics to guide them in successfully completing all assignments.

*Writing Policy:* Teachers are judged on the accuracy of everything they write, whether it is a letter to parents or an email to a principal or a worksheet for students. Your written products – including, but not limited to, papers, lesson plans, and emails – should include appropriate and accurate spelling, grammar, punctuation, syntax, format, and English usage. You should expect that all assignments will be evaluated on these writing skills, in addition to any other expectations of a particular assignment. The UNT Writing Lab (Sage Hall 152) offers one-on-one consultation to assist students with their writing assignments. To use this resource, call (940) 565-2563 or visit <https://ltc.unt.edu/labs/unt-writing-lab-home>.

**Teacher Education & Administration**

***Departmental Policy Statements***

*UNT Career Connect:* All undergraduate students are expected to participate in “UNT Career Connect.” Each student needs to set up a UNT e-portfolio for this purpose. As a UNT student engages in real-life, career-related experiences in curricular and/or co-curricular settings, s/he should upload documentation of these experiences into his/her UNT e-portfolio. Course instructors will help students identify appropriate experiences and accompanying documentation/artifacts for inclusion in the e-portfolio. Through their respective e-portfolios, students are able to make connections across their student experiences and reflect upon their learning and skills in order to prepare them with marketable skills for careers and graduate degrees. The e-portfolio also serves as a useful device for future job interviews. Career Connect places emphasis on important job skills such as communication, teamwork, and critical thinking. For students seeking teacher certification, these on-the-job skills will be evaluated during student teaching using the North Texas Appraisal of Classroom Teaching (NTACT) or its successor instrument. Follow this link to learn more and to set up your personal e-portfolio: <http://careerconnect.unt.edu/default> .

*Disabilities Accommodation:* “The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.” Dr. Barbara Pazey is the compliance officer and contact person for the Department of Teacher Education & Administration.

*Observation of Religious Holidays:* If you plan to observe a religious holy day that coincides with a class day, please notify your instructor as soon as possible.

*Academic Integrity:* Students are encouraged to become familiar with UNT’s policy on Student Standards of Academic Integrity: <http://policy.unt.edu/sites/default/files/untpolicy/pdf/7-Student_Affairs-Academic_Integrity.pdf>. Academic dishonesty, in the form of plagiarism, cheating, or fabrication, will not be tolerated in this class. Any act of academic dishonesty will be reported, and a penalty determined, which may be probation, suspension, or expulsion from the university.

*Acceptable Student Behavior:* Student behavior that interferes with an instructor’s ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at <https://deanofstudents.unt.edu/conduct>.

*Attendance:* See the instructor’s attendance policy*.*

*Eagle Connect*: All official correspondence between UNT and students is conducted via Eagle Connect and it is the student's responsibility to read their Eagle Connect Email regularly.

*Cell Phones and Laptops:* Students should turn off cell phones when they are in class unless the phones are being used for learning activities associated with the course. Similarly, laptops should be turned off, unless they are being used to take class notes and/or participate in class activities.

*SPOT:* The Student Perceptions of Teaching (SPOT) is expected for all organized classes at UNT. This brief online survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SPOT to be an important part of your participation in this class.

*Collection of Student Work*: In order to monitor students' achievement, improve instructional programs, and publish research findings, the Department of Teacher Education and Administration collects anonymous student work samples, student demographic information, test scores, and GPAs to be analyzed by internal and external reviewers.

*Foliotek e-Portfolio*. Foliotek is a free to you software data management system (MMS) used in the assessment of your knowledge, skills, and dispositions relevant to program standards and objectives. You will be required to use your Foliotek account for the duration of your enrollment in the College of Education in order to upload required applications, course assignments, and other electronic evidence/evaluations as required. This course may require assignment(s) to be uploaded and graded in Foliotek. The college of Education will track your progress in your program through this data to verify that you have successfully met the competencies required in your program of study. All students must register in the program portfolio that aligns with their degree plan. Registration codes and tutorials can be found on this site: <https://www.coe.unt.edu/office-educator-preparation/foliotek>.

*Comprehensive Arts Program Policy.* The Elementary Education program area supports a comprehensive arts program to assist preservice and inservice teachers to design and implement curricular and instructional activities which infuse all areas of the arts (visual, music, theater, and movement) throughout the elementary and middle school curriculum.

*Technology Integration Policy.* The Elementary, Secondary, and Curriculum & Instruction program areas support technology integration to assist preservice and inservice teachers to design and implement curricular and instruction activities which infuse technology throughout the K-12 curriculum.

*TExES Test Preparation*. To meet state requirements for providing 6 hours of test preparation for teacher certification candidates, the UNT TExES Advising Office (TAO) administers the College of Education TExES Practice Exams. Students who want to take a practice exam should contact the TAO (Matthews Hall 103). Students may take up to *two exams* per session that relate to their teaching track/field at UNT. Students should also plan accordingly, as they are required to stay for the entire testing period. Current students must meet the following criteria in order to sit for the TExES practice exams: Students must (1) be admitted to Teacher Education, (2) have a certification plan on file with the COE Student Advising Office, and (3) be enrolled in coursework for the current semester. For TExES practice exam information and registration, go to: <http://www.coe.unt.edu/texes-advising-office/texes-exams>. If you need special testing accommodations, please contact the TAO at 940-369-8601or e-mail the TAO at [coe-tao@unt.edu](mailto:coe-tao@unt.edu). The TAO website is [www.coe.unt.edu/texes](http://www.coe.unt.edu/texes). Additional test preparation materials (i.e. Study Guides for the TExES) are available at [www.texes.ets.org](http://www.texes.ets.org).

*“Ready to Test” Criteria for Teacher Certification Candidates*. Teacher certification candidates should take the TExES exams relating to their respective certification tracks/teaching fields during their early-field-experience semester (i.e. the long semester or summer session immediately prior to student teaching).

*Six Student Success Messages.* The Department of Teacher Education & Administration supports the six student success messages on how to succeed at UNT: (1) Show up; (2) Find support; (3) Get advised; (4) Be prepared; (5) Get involved; and (6) Stay focused. Students are encouraged to access the following website: <https://success.unt.edu>. The site contains multiple student resource links and short videos with student messages.