

<http://teachnorthtexas.unt.edu/>

Curry Hall (940) 5656-2265

Instructor: **Dr. Christopher S. Long,** Assistant Professor.

Location of Class: Mathews Hall 111

Time of Class: **Monday, Wednesday 3:00 – 4:20**

Instructor’s Office: Matthews Hall 218C

Office Hours: **Tuesdays 1:00 to 4:00 (Denton)**

**Thursdays 1:00 to 4:00 (Frisco)**

**Or by appointment**

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**Please use this email for all correspondence with the Instructor**



**Course Description**

# EDCI 4500: 3 hours Project-Based Instruction in Math, Science and Computer Science

3 hours. Foundations of project-based, case-based and problem-based learning environments. Principles of project-based curriculum development in mathematics and science education. Classroom management and organization of project-based learning classrooms. This capstone course should be taken just prior to student teaching. Prerequisite(s): TNTX 4000. Admission to the Teach North Texas program, a university grade point average of at least 2.50.

**Goals and Outcomes**

* To explore multiple models of instruction, including project based instruction, problem based instruction, direct instruction and the 5E model; the advantages and disadvantages of each, and what each model requires of students and teachers.
* To explore ways of probing learner understanding through multiple types of assessment, including pre-assessment, formative assessment, and authentic summative assessment, and high-quality tests.
* To explore various strategies for effective delivery of instruction.
* To explore how effective curriculum and instruction facilitates a positive classroom learning environment.
* To facilitate reflective practice and lifelong learning as professionals.

**Course Objectives**

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| **Objective** | **Texas Pedagogy and Professional Standards (PPR) 8-12** |
| Develop and enact a one-week unit of instruction based on a problem in a project-based learning school. | Competency 4: A,D, E, F, K, L, M  The teacher understands learning processes and factors that impact student learning and demonstrates this knowledge by planning effective, engaging instruction and appropriate assessments. |
| Develop an ability to observe and analyze how classroom instruction develops learners’ understanding of content. | Competency 4: A, E, F, G, H  The teacher understands learning processes and factors that impact student learning and demonstrates this knowledge by planning effective, engaging instruction and appropriate assessments. |
| Develop an ability to observe and analyze classroom instruction with regard to equitable and diverse participation (whether *all* students have an opportunity to learn). | Competency 2: A, B, D, E, G, H, I  The teacher understands student diversity and knows how to plan learning experiences and design assessments that are responsible to differences among students and that promote all students’ learning. |
| Use content and equity as lenses to analyze and reflect on their own teaching and learning interactions. | Competency 2: A, B, D, E, G, H, I  The teacher understands student diversity and knows how to plan learning experiences and design assessments that are responsible to differences among students and that promote all students’ learning. |
| Develop multiple types of assessments to determine what students know and how to help them reach learning goals. | Competency 3: A, B, C, F, H  The teacher understands procedures for designing effective and coherent instruction and assessment based on appropriate learning goals and objectives. |
| Discuss and reflect upon beliefs and beliefs systems regarding educational practices. | Competency 12: I  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. |
| Use student work as evidence of classroom results. | Competency 3: C,D  The teacher understands procedures for designing effective and coherent instruction and assessment based on appropriate learning goals and objectives. |
| Develop a direct instruction lesson plan | Competency 3: A, B, C, F, H  The teacher understands procedures for designing effective and coherent instruction and assessment based on appropriate learning goals and objectives. |
| Explore/explain cooperative learning approaches and develop/justify/implement cooperative learning groups. | Competency 4: A, F  The teacher understands learning processes and factors that impact student learning and demonstrates this knowledge by planning effective, engaging instruction and appropriate assessments. |
| Become familiar with several important types of teaching technology and understand how technology can affect classroom interactions. | Technology Applications Standard V  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 (TEKS) into the curriculum. |
| Develop a unit plan to span at least 3 weeks that incorporates the one-week PBL field placement plan | Competency 3: A, B, C, F, H  The teacher understands procedures for designing effective and coherent instruction and assessment based on appropriate learning goals and objectives. |
| Write reflections and correspondence that are ready for professionals to read by an outside scorer, administrator, parent, or fellow teacher. | Competency 11: A, B, C, G, I  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. |

**Semester Calendar**

(All dates and assignments are tentative and subject to change)

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| **Week** | **Dates** | **Topic/Lecture/Activity/Assignments** |
| 1 | 1/13, 1/15 | **Course Introduction**  Syllabus overview  Introduce the Teacher Research Project |
| 2 | 9/22 | Short Week (Martin Luther King Day)  **Unit 1: Models of Instruction**  Performance objectives and assessment overview |
| 3 | 9/27, 9/29 | **Unit 1: Models of Instruction**  Instructional models (PBI, 5E, Direct Instruction)  The driving question |
| 4 | 2/3, 2/5 | **Unit 1: Models of Instruction**  Direct instruction  Instructional strategies |
| 5 | 2/10, 2/12 | **Unit 1: Models of Instruction**  5E Model review  Questioning |
| 6 | 2/17, 2/19 | **Unit 1: Models of Instruction**  Informal and formal assessment  Engagement strategy |
| 7 | 2/24, 2/26 | **Unit 1: Models of Instruction**  PBI design steps  The entry event |
| 8 | 3/2, 3/4 | **TRP Work Week**  Working Session |
| 9 | 3/16, 3/18 | **Unit 2 Classroom Management**  Previewing strategies  Building relationships |
| 10 | 3/23, 3/25 | **Unit 3: Assessment**  Concept Mapping |
| 11 | 3/30, 4/1 | PBI WEEK |
| 12 | 4/6, 4/8 | **Unit 4: TRP**  Component 3: Design of instruction |
| 13 | 4/13, 4/15 | **Unit 4:TRP**  Component 4: Delivery of instruction |
| 14 | 4/20, 4/22 | **TRP work week**  Elevator presentations |
| 15 | 4/27, 4/29 | **Review Week**  TRP Presentations |
| 16 | 5/2– 5/8 | Finals Week exact date TBD |

**Assignments, Attendance, and Grading Policies**

*Attendance and Participation*

You are preparing for a profession in which your daily presence is imperative to the success of your students and your attendance in this class represents that commitment. This course is designed and organized to be highly collaborative and experiential. It will involve literature discussion groups, and small and large group discussions and activities. Therefore, your attendance and participation are essential to your learning. It is not possible to be enriched by discussions and collaborations if you are not present or prepared for class. Please, contact the instructor as soon as possible in the case of an excused absence.

* **3 absences = final grade in the course will be lowered by one full letter grade**
* **4 absences = final grade in the course will be lowered by two full letter grades**
* **5 absences = May result in a non-passing grade**

There will be a daily attendance and participation grade awarded for every class session. In order to receive the maximum score, you will need to be in class on time, prepared, and present in all class discussions and activities.

***Communication in the Course***

1. All class communications will be sent your UNT email address. Canvas is linked with your UNT email address. All communication that is sent by you should also occur through your UNT email address
2. Copy your instructor on **all e-mails** that you send to your mentor teacher in the public school. To copy the instructor, type their email address into the “CC:” text box within your email client. It is your responsibility to forward an email from your mentor teacher if he/she did not CC: your instructor.
3. Check your email and the Canvas web site daily for class updates.

***Field Observations***

This course has a significant field placement experience. To help you understand how modern high schools and science and math classrooms function, and to bring the theories we discuss in class into practice, you will observe at your assigned school a minimum of two times in the course acquiring observation hours prior to the implementation of instruction you and your team will implement. Lesson planning includes technology that is content embedded.

Attendance in your observation hours is a core element of this course to help you prepare for the realities of classroom practice. Failure to meet these requirements will result in the cancellation of your teach.

Your two observations must be completed and your lesson plan must be officially approved by your course instructor before your teach occurs. In addition, your teach must be implemented for the full time (or making up any missed hours/days) and have acceptable evaluations of your mentor facilitator and Master Teacher observer.

If you do not teach or do not meet minimum competency in the implementation of your teach, this will result in failure of this course and possible removal from the TNT program. Professionalism and teaching proficiency is part of your grade. In addition, a minimum of 30 hours of TNT teaching and observations must be documented by the end of this course in order for you to move on to your Apprentice Teacher semester.

***Assignments***

Assignments for this course have been carefully developed to scaffold your ability to meet the course goals; that is, to thoughtfully plan, enact, and reflect upon inquiry-based mathematics and science lessons. Late assignments may earn a penalty, up to and including no (0) points.

Instructions for assignments may be found in the Canvas module. Assignments are submitted according to the due dates listed in Canvas. Most assignments are to be submitted on Canvas or Foliotek.

***Grading and Grade Reporting***

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| **Category** | **Percent value** |
| Daily Attendance and Participation | 10% |
| Assignments and Quizzes | 10% |
| Teacher Research Project | 30% |
| Unit Tests | 25% |
| Final Exam | 25% |
| Total | 100% |

90-100%=A; 80-89%=B; 75-79%=C; 70-74%=D; 0-69%=F

**Materials**

***Required Texts****:*

Students will be able to check out the required texts from the instructor. However, students are strongly encouraged to purchase their own copies to add to their personal professional libraries.

Dean, C., Hubbell, E., Pitler, H. & Stone, B. *Classroom Instruction that Works: Research-Based Strategies for Increasing Student Achievement.* (2nd edition).

Marzano, R. *The New Art and Science of Teaching.*

Boss, S. & Larmer, J. *Project Based Teaching: How to Create Rigorous and Engaging Learning Experiences*.

**For Science Students**

Keely, P. *Science Formative Assessments (2nd ed)*

**For Math Students**

Keely, P. & Tobey, C. *Mathematics Formative Assessments.*

**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.



***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.