

SYLLABUS

EDSE 4500

Location: Chemistry 235

Class Days and Times: Tues/Thurs 3:30 - 4:50 p.m.

Instructor

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Office Hours: Mondays & Wednesdays
 2:00 p.m. – 4:00 p.m.
 and by appointment. Much
 of Dr. Sherman's time is spent in
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Master Teacher

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 By appointment. Much of Mrs. Woods'
 time is spent in the field

Access to Blackboard Vista IS required: <https://ecampus.unt.edu/webct/entryPage.dowebct>

Open hours will be available in Marquis 127. The times for Open Hours will be posted on Blackboard.

Note: *The BEST way to e-mail is through Blackboard Vista. Allow 48 hours for a response not including Saturday and Sunday.*

Prerequisites: Successful completion of
 EDSE 3500 – Knowing & Learning
 EDSE 4000 – Classroom Interactions

Additional Requirements: Students must use a word processor, email and have access to a web browser. BlackBoard Vista is the primary mode for communication and assignment completion. Tk20 usage is required for preliminary portfolio completion and course assessments. Students must be able to travel off campus during the school day to observe and teach lessons. If these requirements cannot be fulfilled, please see instructor.

Course Rationale:

Project-based instruction engages learners in exploring authentic, important, and meaningful questions of real concern to students. Through a dynamic process of investigation and collaboration and using the same processes and technologies that real scientists, applied mathematicians, and engineers use, students work in teams to formulate questions, make predictions, design investigations, collect and analyze data, make products and share ideas. Students learn fundamental science and mathematical concepts and principles that they apply to their daily lives. Project-based instruction helps all students regardless of culture, race, or gender engage in learning.

Course Description:

PBI has three essential components:

- *Theory-driven perspective:* Students learn about how people learn and how project-based instruction may be among our most informed classroom learning environments for bridging the gap between theory and practice.
- *Instructional Development:* Technological and pedagogical content knowledge are developed as TNT students work toward the design of project-based units. Competency is continually built as students read about and discuss the principles of PBI; reflect on observations of project-based learning environments in high school settings; and incorporate what they are learning into the design of problem-based lessons and ultimately, an entire project-based unit.
- *Field Experience:* An intensive field component includes observation of well-implemented project-based instruction in local schools as well as implementation of problem-based lessons with area high school students on a study field trip.

Perspective:

A major hurdle in implementing project-based curricula is that they require simultaneous changes in curriculum, instruction and assessment practices – changes that are often foreign to students as well as practicing teachers. In this course we will develop an approach to designing, implementing and evaluating problem- and project-based curricula and processes for PBI curriculum development that has emerged from collaboration with teachers and researchers. Previous research has identified four common design principles that appear to be especially important: (1) Defining learning appropriate goals that lead to deep understanding; (2) Providing scaffolds such as beginning with problem-based learning activities before completing project; using “embedded teaching”, “teaching tools” and set of “contrasting cases”; (3) Including multiple opportunities for formative self assessment; (4) Developing social structures that promote participation and revision. We will first discuss these principles individually and then compare them to other design principles suggested by other groups involved with project-based instruction.

Course Schedule

Class	Topic
Week 1:	Course Orientation & Project vs. Problem Based Instruction
Week 2:	Driving Questions & Standards
Week 3:	Beginning with the End in Mind & Preliminary Portfolio
Week 4:	Concept Mapping & New Tech High @ Coppell field trip
Week 5:	Planning the Investigation & Writing Benchmark Lessons
Week 6:	Formative/Summative Assessments in PBL
Week 7:	Writing Lesson Plans
Week 8:	Anchor Videos & Rubric Design
Week 9:	Preparation for Field Experience
Week 10:	Field Experience at New Tech High
Week 11:	Special Populations and PBL & Differentiated Instruction
Week 12:	Editing Anchor Videos
Week 13:	Writing Grant Proposals
Week 14:	Peer Review of Final Project and Final Revisions
Week 15:	Final Project Presentations

Required Course Materials

Markham, T., Larmer, J., Ravitz, J. (2003). *Project Based Learning Handbook: A Guide to Standards-Focused Project Based Learning, Second Edition*. Novato, CA: Buck Institute for Education. ISBN: 0-9740343-0-4

Larmer, J., Ross, D., Mergendoller, J. R. (2009). *PBL Starter Kit: To-the-Point Advice, Tools and Tips for Your First Project*. Novato, CA: Buck Institute for Education. ISBN: 0-9740343-2-0

Articles

Baumgartner, E., Zabin, C. J. (2008). A case study of project-based instruction in the ninth grade: A semester-long study of intertidal biodiversity. *Environmental Education Research*. 14(2), p 97-114.

Beckett, G. H., Slater, T. (2005). The project framework: A tool for language, content, and skills integration. *ELT Journal: English Language Teachers Journal*, 59(2). p 108-116.

Boaler, J. (2011). Chapter 6: Mathematical dream makers: How two different math departments brought about equity and high achievement. *Yearbook (National Council of Teachers of Mathematics)*, 73. p 85-97.

Chin, C., Li-Gek Chia. (2008). Problem-based learning tools. *Science Teacher*, 75(8). p 44-49.

Colley, K. (2008). Project-based science instruction: A PRIMER. *Science Teacher*, 75(8). p 23-28.

Petrosino, A.J. (2004). Integrating curriculum, instruction, and assessment in project-based instruction: A case study of an experienced teacher. *Journal of Science Education and Technology*, 13(4), p 447-460.

Steele, M. M. (2008). Helping students with learning disabilities succeed. *The Science Teacher*, 75(3), p 38-42.

Tresidder, G. (2006). Data handling and citizenship. *Mathematics Teaching*, (197). p 40-44.

Electronic Resources:

Texas Pedagogy and Professional Responsibilities (8-12) Standards:

<http://www.sbec.state.tx.us/SBECOnline/standtest/standards/8-12ppr.pdf>

National Council of Teachers of Mathematics: www.nctm.org

National Science Teachers Association: <http://www.nsta.org>

Math TEKS: <http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html>

Science TEKS: <http://ritter.tea.state.tx.us/rules/tac/chapter112/index.html>

Common Core Standards for Mathematics:

http://www.corestandards.org/assets/ccssi_Math%20Standards.pdf

Bloom's Taxonomy: <http://www.skagitwatershed.org/~donclark/hrd/bloom.html#cognitive>

Texas Higher Education Coordinating Board (2008). *Texas College and Career Readiness Standards*. (optional) (<http://www.theccb.state.tx.us/collegereadiness/CRS.pdf>)

Course Objectives

Course Objectives and Evidence of Student Learning and Engagement		
Students will:	Evidence:	Texas PPR Standards:
Discuss and critique the merits of project-based instruction in terms of student's cognitive development, equity and motivation.	<ul style="list-style-type: none"> In-class and online discussions A project-based unit that includes a rationale and objectives A grant proposal to implement a project-based unit that includes a rationale and potential impact 	Domain I: Competency 1: K, L, N Domain II: Competency 5: A-G
Reflect on applications of educational theory as it relates to classroom practice in the area of project-based instruction.	<ul style="list-style-type: none"> In-class and online discussions A grant proposal to implement a project-based unit that includes a rationale and potential impact 	Domain I: Competency 4: A
Distinguish between project-based instruction and other instructional approaches and decide which approach best fits instructional goals based on the benefits and limitations of each.	<ul style="list-style-type: none"> In-class and online discussions A project-based unit that includes benchmark lessons and a lesson sequence that incorporates appropriate instructional approaches. 	Domain I: Competency 3: F, G
Evaluate the usefulness of technology in achieving learning objectives and select appropriate resources for student use based on the relationship of salient features of the technology to learning objectives.	<ul style="list-style-type: none"> An annotated list of relevant resources and technological tools for a project-based unit Classroom presentation utilizing technology tools 	Domain III: Competency 9: F, G Technology Applications Standards II: Domain III
Use inquiry methods with secondary students in a problem-based setting.	<ul style="list-style-type: none"> A project-based unit that includes benchmark lessons and a lesson sequence that incorporates appropriate instructional approaches. Videotape evidence of TNT students leading problem-based activities in a field setting 	Domain I: Competency 2: D Competency 3: A-H Competency 4: A, E, F, G, I, L, M Domain II: Competency 5: A-G Competency 6: C, J Domain III: Competency 7: B, C, D Competency 8: C, E Competency 9: F, G Competency 10: A-E

Students will:	Evidence:	Texas PPR Standards:
Describe examples of project-based instruction in math or science and analyze those examples in terms of several well-studied, field-tested models for PBI.	<ul style="list-style-type: none"> In-class and online discussions Field observations of project-based classrooms 	Domain II: Competency 6: C, J
Demonstrate skill in setting up and managing wet lab and field project-based environments.	<ul style="list-style-type: none"> Videotape evidence of TNT students setting up and managing wet lab and field project-based environment 	Domain II: Competency 5: A-G Competency 6: C, J Domain III: Competency 7: B, C, D Competency 8: C, E
Use PBL design principles to develop an interdisciplinary, three to four-week project-based unit for secondary math and/or science courses.	<ul style="list-style-type: none"> A project-based unit including an anchor video, calendar, rationale, objectives, theoretical basis for the project, concept map, benchmark lessons, investigations, alternative assessments, strategies for differentiating instruction for students with special needs, related resources and technology tools. 	Domain I: Competency 2: D Competency 3: A-H Competency 4: A, E, F, G, I, L, M
Develop alternative assessments appropriate for project-based instruction.	<ul style="list-style-type: none"> Problem-based lessons that include alternative assessments A project-based unit that includes alternative assessments 	Domain I: Competency 2: D Competency 3: A-H Competency 4: A
Discuss lab safety and liability issues related to project based instruction and wet-lab or field environments (OSHA regulations, how to read materials safety data sheets, safe disposal of chemicals, etc.)	<ul style="list-style-type: none"> Participation in class discussion on safety and liability issues A project-based unit that includes safety precautions 	Domain II: Competency 5: F
Use relevant technology to develop projects (e.g., concept mapping software, video editing software, etc.).	<ul style="list-style-type: none"> Technology-based or developed project elements 	Technology Applications Standard I: Domain III
Integrate relevant technology into curricular units (e.g., Internet, simulations, data analysis packages, modeling software, etc.).	<ul style="list-style-type: none"> A project-based unit that includes lessons that integrate the use of technology 	Technology Applications Standard II: Domain III

Students will:	Evidence:	Texas PPR Standards:
Plan instruction that promotes equitable and diverse participation so that all students have an opportunity to learn.	<ul style="list-style-type: none"> A project-based unit that includes lesson plans documenting modifications for special populations 	Domain II: Competency 5: A-G

Competency 2: 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 5: The teacher knows how to establish a classroom climate that fosters learning, equity and excellence and uses this knowledge to create a physical and emotional environment that is safe and productive.

Competency 6: The teacher understands strategies for creating an organized and productive learning environment and for managing student behavior.

Competency 7: The teacher understands and applies principles and strategies for communicating effectively in varied teaching and learning contexts.

Competency 8: The teacher provides appropriate instruction that actively engages students in the learning process.

Competency 9: The teacher incorporates the effective use of technology to plan, organize, deliver and evaluate instruction for all students.

Competency 10: The teacher monitors student performance and achievement; provides students with timely, high-quality feedback; and responds flexibly to promote learning for all students.

Competency 13: The teacher understands and adheres to legal and ethical requirements for educators and is knowledgeable of the structure of education in Texas.

Course Schedule and Syllabus:

A semester overview is provided with this handout. Every attempt will be made to adhere to the schedule provided, but the instructor reserves the right to make changes as needed.

Announcements about these changes will be made in class and posted to BlackBoard Vista.

Grading & Assignments

Student grades are based on participation in discussions, successful completion of classroom observations and study field trips, and a final project-based unit. Specific due dates are listed in the course overview and are turned in on BlackBoard Vista or TK20 by midnight of the date listed.

ASSIGNMENT	GRADING RULE	POINTS POSSIBLE
Online discussion of readings	Completion 2 pts each	20
Leading in-class discussion of readings	Questions and completion	5
Observation reflection	Completion 3 pts each	6
Preparation for mini-project:	Rubric and completion	15

<ul style="list-style-type: none"> • Write plans • Attend Saturday planning trip 		
Teach mini-project	Teach 2-3 days, provide mentor teacher & observer notes, reflect on experience	10
Preliminary portfolio	Rubric	10
Final project components	Completion of components	36
Final project	Rubric	25
TOTAL POINTS		127

Grading Scale (Grades in the class will be determined by percentage of points earned during the semester according to the scale below.)

90 – 100 = A

75 – 79 = C

Below 70 = F

80 – 89 = B

70 – 74 = D

TK20 Assignments The complete preliminary portfolio and the complete final project will be turned in to TK20. Failure to turn in either of these assignments on time WILL result in a zero (0) on the assignment. Failure to turn in a satisfactory preliminary portfolio (earning at least 22 points out of a maximum 34 points possible) will result in NO Apprentice Teaching placement until the portfolio scores satisfactorily. See Course Overview for due dates

All papers turned in for evaluation should be typed demonstrating neatness and appropriateness in grammar, punctuation, capitalization, and spelling. APA 6th edition will be used when writing references in lesson plans and that style will be used for writing papers. Points will be deducted for multiple errors.

No late work will be accepted.

Study Trip Component: Field-Based Teaching Experiences

PBI Field Teaching Experience. Students will be provided with opportunities for working in classrooms teaching a problem-based lesson that could be used to introduce a problem-based investigation lesson. These teaching opportunities will occur at New Tech High @ Coppell. PBI students will conduct a preliminary trip to learn about resources and investigate possible problem based lessons for secondary school students. PBI students will teach introduction lessons to secondary students on 10/29/12 to launch investigations with the secondary students. PBI students will then lead the secondary students on a data collection field trip on 10/30/12. Secondary students will be provided with resources to collect data in the field. A content lesson will be taught on 11/1/12. The secondary students will then analyze the data and prepare a presentation on 11/2/12. The secondary students will present their results on 11/3/12. These field experiences will be taught twice in the same day so that reflection and revision can be employed for lesson improvement between period one and period two. Draft lessons are due no later than two weeks prior to the teach dates so that review and revision can

occur in a timely fashion. Team collaboration and collaboration with the mentor teacher is expected throughout the planning process.

Observations. Each TNT student is required to spend at least 4 - 6 hours observing high school classes that are structured on the project-based method of teaching. They are to record their observations and answer specific focus questions, and then post them to the class website. The information gathered in these observations is also used to inform the class discussions of the peer-reviewed literature on project-based instruction. There is a form posted to the course web site that must be signed by the classroom teacher to verify their presence during these observations. Students will be provided with classroom teacher contact information and schedules to plan these observations.

Final PBI Project

Each TNT student prepares a PBI unit (three to six weeks in length) to be taught in the secondary class of their choice. It is recommended that the unit be prepared to meet curricular objectives and state and national standards for some portion of the time the student anticipates working in Apprentice Teaching. The unit will include components as described on a separate handout entitled "Everything for the Final Project". This PBI unit is the assessment in TK20 and will be turned in to TK20 at the end of the semester for evaluation.

TK20 and the Preliminary Portfolio

One of the required assignments in class is completion of the preliminary portfolio on Tk20. Early in the semester, the TK20 technical advisor will come to class to discuss the details on what is expected of you with this assignment and how to effectively use the Tk20 system. Every student in TNT has a TK20 account and has used this account in both EDSE 3500 and EDSE 4000 for completion of assignments/assessments. The building of the preliminary portfolio allows you to begin thinking about your work as evidence of teaching competence for future school administrators that could potentially hire you. You are encouraged to include pieces of the preliminary portfolio in the final portfolio that is developed in Apprentice Teaching. ***Failure to adequately perform in this area will result in no placement for Apprentice Teaching until the preliminary portfolio meets the required passing standard.***

Discussions

Web Discussions. On-line discussions: Students will participate in frequent on-line discussions on course readings and field experiences by posting answers to Discussion questions assigned on the course web site. These will take place prior to class sessions and will form the basis for some class activities.

Class Discussions: Instructor lead in-class discussions will tie together theory and field experiences. Students will use on-line discussions, readings, class activities, and field experiences as the basis for discussing focus questions.

Discussion Leadership: Students will sign up for a turn as a discussion leader for small group discussions of the peer reviewed literature assigned. The roles and responsibilities of the discussion leaders are to:

- a) Read all class discussion posts PRIOR to the in-class session and be prepared to summarize for their small group the class responses to the focus questions provided by the instructor;

b) Prepare a second set of questions for the face-to-face discussion of these readings, for the purpose of extending and deepening student thinking about the assigned readings and how they compare to their observations in project-based classrooms.

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 registration, go to:

<http://www.coe.unt.edu/texas-advising-office/texas-practice-exam-registration>. If you need special testing accommodations, please contact the TAO at 940-369-8601 or e-mail the TAO at coe-tao@unt.edu. The TAO website is www.coe.unt.edu/texas. Additional test preparation materials (i.e. Study Guides for the TExES) are available at www.texas.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).

Attendance and Class Participation

- Prepare for and participate in class discussions (face-to-face and virtual discussions on course web site) in a timely fashion.
- Attend class each day and work in teams as directed by instructor or as required to collaborate and complete various aspects of the final project. Attendance is taken daily.
- EXCUSED ABSENCES are allowed ONLY if students communicate one of the following to the instructor via email:
 - ONE WEEK prior to class, religious holidays OR conflicts with required absences due to UNT sponsored activities;
 - Illness should be communicated as soon as possible and, if lasting more than one class period, a doctor’s note should be provided when the student returns to class.
- **Absences and tardies will count toward final grade reduction: 3 absences = one letter grade lowered, 4 absences = 2 letter grades lowered, 5 absences = three letter grades lowered, 6 or more absences = failure in the class.**
- **Three tardies = 1 absence, 6 tardies = 2 absences, etc. Being tardy is defined as arriving to class within 30 minutes of the official start of the class. More than 30 minutes late counts as an absence.**

Classroom Behavior:

- **Professionalism:** You are in training to be a professional so you need to act like one. Many times in this class other people will depend on you for a variety of matters. It is expected

that you not let these people down. The Golden Rule is always appropriate. If at any time in the semester, the instructor discovers that you are not acting as a total professional, points may be deducted. Things that may warrant deduction are (but are not limited to): irresponsibility as discussed above, unprofessional communication with a professional, failure to communicate changes in teaching schedule to TNT, excessive tardiness or laziness that affects your partner, unprofessional dress, rudeness, inappropriate use (and abuse) of cell phones and/or laptop computers, or anything else that might reflect poorly on TNT/UNT. Point deductions are totally at the instructor's discretion.

- **Student Conduct:** Expectations for behavior in this class accord with the Code of Student Conduct: "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 Center for Student Rights and Responsibilities 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." See www.unt.edu/csrr.
- **Cell Phones and Laptops:** Students should turn off cell phones when they are in class. This means vibrate as well as ring modes. Also, there should be no texting during class. Laptops may be used in class for taking notes and for engaging in learning activities for the course.

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."

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 academic integrity: http://www.unt.edu/policy/UNT_Policy/volume3/18_1_16.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.

SETE: The Student Evaluation of Teaching Effectiveness (SETE) 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 SETE 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.

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.

This course syllabus is intended to be a guide and may be amended at any time.