EDUT 4370: Project Based Instruction

Spring 2026
T 11:00-12:20

Instructor
Jaclyn Pedersen, Ed.D.
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Indication of best way to contact the instructor: Email
Office Hours: Wednesday 10:00-2:00, Thursday 11:30 – 2:00, Friday 10:00-2:00

Course Catalog Description
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. Thirty hours of field experience are required for this course.

Student Learning Outcomes & Assessments:

1. The student will be able to discuss, critique, and reflect on the applications of project-based instruction as it relates to teaching and learning.
2. The student will be able to prepare, implement, and reflect on instructional lesson planning addressing both teacher directed and inquiry-based inclusive of evidence promoting student success.
3. The student will be able to describe, evaluate, and use various instructional technologies relevant to the mathematics and science classroom.
4. The student will be able to individually develop and implement mini-project-based activities with middle to high school students in a real world setting with.
5. The student will be able to collaboratively develop a 3-4 week project-based integrated unit and display the project in a web-based environment.
6. The student will be able to describe and develop multiple assessment items and procedures addressing standards-based objectives.
7. The student will successfully complete 30 hours of field inclusive of at least two classroom observations of planned lessons.

Course Topics and/or Student Learning Outcomes	Activities	Assessment (including performance-based)	Standards Alignment
The student will be able to discuss, critique, and reflect on the applications of project-based instruction as it relates to teaching and learning.	○ Discussions ○ Observations	○ Discussion board reflections ○ Observations Paper	**TES** 3.A **ISTE:** 1c **INTASC:** 2, 3, 4, 5, 7, 8
The student will be able to prepare, implement, and reflect on instructional lesson planning addressing both teacher directed and inquiry-based inclusive of evidence promoting student success.	○ Lesson Plans ○ PBL Design	○ Teaching Reflection Papers ○ PBL Design Rubric ○ Lesson Plan Rubric	**TES** 1, 2Ai,ii, 2B, 2C, 3, 4, 5B **ISTE:** 1c, 4a, 4b, 4c **INTASC:** 2, 3, 4, 5, 7, 8,10 **TEKS**: 112.15, 112.16, 112.17, 112.18. 112.19,

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			112.20, 112.31, 112.61; 111.6, 111.7, 111.25, 111.26, 111.27, 111.28, 111.38, 111.51
The student will be able to describe, evaluate, and use various instructional technologies relevant to the mathematics and science classroom.	○ PBL Website ○ Use of graphing calculators and TI-Nspire ○ Use of science probes and lab equipment	○ Lesson Plan Rubric	**TES** 1, 3A, B, C **ISTE:** 4a, 4b, 4c **INTASC: .7** 8
The student will be able to collaboratively develop and implement mini-project-based activities with middle to high school students in a real world setting with	○ Design PBL Workshops ○ PBL Design	○ Teaching Reflection Papers	**(Texas Educator Standards** 1, 2Ai,ii, 2B, 2C, 3, 5B **ISTE:** 4,a,b,c 5. b **INTASC: 7,8,**10 **TEKS**: 112.15, 112.16, 112.17, 112.18. 112.19, 112.20, 112.31, 112.61; 111.6, 111.7, 111.25, 111.26, 111.27, 111.28, 111.38, 111.51
The student will be able to collaboratively develop a 3-4 week project-based integrated unit and display the project in a web-based environment.	○ PBL Design ○ PBL Website	○ PBL Design Rubric ○ PBL Presentation	**TES 1,** 2Ai,ii, 2B, 2C**,** 3, 5B **ISTE:** 4,a,b,c 5. b **INTASC: 1,** 2, 3, 4, 5, 7, 8, 10 **TEKS**: 112.15, 112.16, 112.17, 112.18. 112.19, 112.20, 112.31, 112.61; 111.6, 111.7, 111.25, 111.26, 111.27, 111.28, 111.38, 111.51
The student will be able to describe and develop multiple assessment items and procedures addressing standards based objectives.	○ PBL deliverables ○ PBL pre and post tests ○ PBL rubrics	○ PBL Design Rubric	**TES** 2 **INTASC:** 2, 3, 4, 5, 7, 8 **TEKS**: 112.15, 112.16, 112.17, 112.18. 112.19, 112.20, 112.31, 112.61; 111.6, 111.7, 111.25, 111.26, 111.27,

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			111.28, 111.38, 111.51
The student will successfully complete 30 hours of field inclusive of at least two classroom observations of planned lessons.	○ Observations ○ Co-teaching ○ Teaching	○ Observations Log ○ Observations Paper ○ Teaching Reflection Paper	**TES** 4, 5 **INTASC:** 2, 3, 4, 5, 7, 8

Evaluation and Grading
Professional Article Discussions (Flipped Assignments) 20%
Interviews and Observation Paper 10%
Lesson Packets 30%
Classroom/Online Participation/Attendance 10%
Final Project 30%
TOTAL 100%

A = 90-100% B = 80-89% C = 70-79% D = 60-69% F = 0-59%
NOTE: I expect that for every hour spent in class, two hours should be spent outside of class reading and working on assignments.

Last Day to Withdraw from Courses: Monday March 30th, 2026.

Related Field Experiences:
A student must successfully pass field in order to pass this class. Passing field is based on the following factors:

1. Completion of 30 contact hours which includes:
    a. 2 observations
    b. 2 individual teaches
    c. **Active** participation in classrooms
    d. **Active** participation in PLCs
2. Observable improvements in implementation of prepared lessons. (Minimum of TWO university supervisor observations)

Teaching Strategies:
1. **Professional Article Discussions**: The student will be required to read the required professional articles and provide a reflection on theses using the discussion board in Canvas, as well as respond to discussions posted by classmates.
2. **Interviews and Observations Paper**: During the course of the semester, you will be required to conduct one teacher interview with your mentor teacher, one student interview with a group of students along with two official observations of your mentor teacher's classroom as they conduct workshops connected to a PBL. The student will also be required to reflect on his/her experiences in traditional schools and compare and contrast the teaching strategies, environment and students with the assigned classroom at the University Academy. You will be required to summarize and critique the results of these interviews and observations in a paper structured by the planning, implementation, and reflection of the practices of the observed classroom teacher and students. The final paper should be 3-5 pages and submitted through canvas**.**
3. **Lesson Packets**: The student will be required to individually teach two complete workshops during their field experience that are directly related to their mentor teacher's current project. In order to do this, students will need to plan time to meet with the teachers during their PBL planning time. The student will need to make sure to establish their teaching times with the mentor teacher as well as Dr. Pedersen. The Field Teaching Papers will have the student reflect on the areas of preparation for the workshops, implementation of the workshops, and reflection of the workshops that were taught. Submission will be done through canvas.

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4. **Online and in-class Participation/Attendance**: The student will be required to complete online discussions, participate in in-class discussions and attend class regularly. Active participation through Canvas is imperative.
5. **Final Project**: Each student collaboratively prepares a Project-Based Instructional unit to be taught in the secondary class of their choice. It is required that the unit be prepared to meet curricular objectives and state and national standards. Groups will present their project designs using the guidelines and rubrics attached during their Finals. All information related to the PBI unit will be constructed within a website. All components of the project must be made available through this website. Assessment of this project and its components will be made from the information and resources found on the created website.

Required Readings:
Articles are assigned throughout the semester via Canvas. Articles are relevant to coursework and student needs as apparent through formative assessments throughout the semester.

Bibliography:

Darling-Hammond, L, & Bransford, J. (Eds.). (2005). *Preparing teachers for a changing world. What teachers should learn and be able to do.* San Francisco, CA:Jossey-Bass.

Nutta, J., Mokhtari, K., & Nutta, J. (Eds.). (2012). *Preparing every teacher to reach English learners: A practical guide for teacher educators.* Cambridge, MA: Harvard Education Press.

Tomlinson, C.A. (2014*). The differentiated classroom: Responding to the needs of all learners* (2nd edition). Alexandria, VA: ASCD.

Internet Resources:
TEA http://www.tea.state.tx.us/
National Technology Standards http://cnets.iste.org/index2.html
National Council of Teachers of Mathematics http://www.nctm.org
Texas Council for Teachers of Mathematics http://tctmonline.org/
Science Teachers Association of Texas http://www.statweb.org/
National Science Teachers Association http://www.nsta.org/
National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/vlibrary.html
Shodor Interactivate http://www.shodor.org/interactivate
WisWeb: http://www.fi.uu.nl/wisweb/en/
Database search for educational journals http://library.uttyler.edu/
Creative Publications www.creativepublications.com
EAI Education www.eaieducation.com
Texas instruments http://education.ti.com/
AIMS www.AIMSedu.org
Eye on Education www.eyeoneducation.com
Casio http://www.casio.com/education/
NASCO www.eNASCO.com
Lead4ward www.lead4ward.com

Course Policies (attendance, make-up assignments, etc.)
All assignments are due on or before the dates provided in the Topical Outline. Each assignment must be type written and submitted in Canvas. No email attachments will be accepted. **Ten percentage points** will be subtracted from your assignment score for each calendar day the assignment is late. Assignment dates may be moved to later (but not earlier) scheduled dates during the course of the semester. All exam dates are final. If an exam is not taken due to a documented illness, funeral, or other university related activity, then a makeup date must be scheduled with the professor. Note that the Canvas program SafeAssign will be used during the semester to make sure no assignment has been plagiarized. This program will check your assignment against their database of resources then produce a percentage match. This percentage will tell me how much of your assignment matches the resources available. Each student may submit his or her

assignments as drafts prior to final submission to check this percentage.

Canvas: Students will access class notes, assignments, grades and course information through Canvas. Any changes to the course schedule, schedule of assignments, or any special assignments will be posted on Canvas. Students are expected to regularly check Canvas for updates and to download any class handouts.

Course Rationale from UTeach Austin:
"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 scientists, 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 promotes equitable and diverse participation and engages students in learning."

Course Description from UTeach Austin:
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 UTeach 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 secondary students on a study field trip.

Perspective from UTeach Austin:
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.

UNIVERSITY POLICIES

UT Tyler Honor Code
Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

For a full list of university policies including information related to the topics listed below, click here.

- Students Rights and Responsibilities
- Campus Carry
- Tobacco-Free University
- Grade Replacement/Forgiveness and Census Date Policies

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- State-Mandated Course Drop Policy
- Disability Services
- Student Absence due to Religious Observance
- Student Absence for University-Sponsored Events and Activities
- Social Security and FERPA Statement
- Emergency Exits and Evacuation
- Student Standards of Academic Conduct

UT Tyler Resources for Students:

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu, http://www.uttyler.edu/writingcenter/
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu, https://www.uttyler.edu/tutoring/
- The Mathematics Learning Center, RBN 4021, This is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254) https://www.uttyler.edu/counseling/

University Guidelines, Links and Policies

College of Education and Psychology (CEP) Vision and Mission

Core Purpose of the College of Education and Psychology

To prepare competent, caring, and qualified professionals in the field of education, psychology, and counseling; to foster discovery; and to advance the knowledge base in our respective disciplines.

Vision: The CEP will be a global leader in responding to needs in the fields of education, psychology, and counseling, with a focus on the East Texas region, by creating innovative academic and scholarly pathways and partnerships.

Mission: The mission of the CEP is to prepare competent and passionate professionals in the fields of education, psychology, and counseling; to advance knowledge and expertise; and to impact these fields locally, regionally, nationally, and internationally.

UT TYLER'S SCHOOL OF EDUCATION STANDARDS FOR EDUCATOR PREPARATION PROGRAMS

Texas Education Standards: The School of Education are committed to teaching and implementing the Texas Educator Standards at the highest level. The School of Education faculty use the Texas Education Standards, along with the Interstate New Teacher Assessment and Support Consortium (InTASC) standards used by educator preparation programs throughout the United States.

The list of Texas Education Standards can be accessed here.

Access the Code of Ethics and Standard Practices for Texas Educators can be accessed here.