



EDUC 4301: Mathematical Problem Solving in EC6, Fall 2024

Face to Face

Monday 1:00-3:45 BEP 218

Instructor Information

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Office: BEP 241

Office Hours: Mondays 9:00am-12:00pm or by appointment

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Indication of best way to contact the instructor: Email

Last Day to Withdraw from Courses: November 4, 2024

Course Catalog Description

Topics in teaching mathematical content in EC6 classrooms through mathematical problem-solving techniques such as problem- and project-based instruction. Prerequisite: MATH 1350.

Student Learning Outcomes & Assessments

| Course Topics and/or Student Learning Outcomes | Assessment (including performance-based) | Standards Alignment |
|--|--|---|
| The student is expected to... | | |
| Research, identify, examine, and discuss the historical principles and strategies of problem solving in the mathematics classroom. | Exams | Mathematics Generalist EC-6 Standards: Standard VI INTASC Standards: 4 and 5 TEKS: 111.1 – 111.26 |
| Solve and analyze non-routine problems addressing mathematical content at or below the intermediate grade level. | Exams | Mathematics Generalist EC-6 Standards: Standard VI INTASC Standards: 4 TEKS: 111.1 – 111.26 |
| Research and implement best practices in authentic project-based learning. | Investigative Reports | Mathematics Generalist EC-6 Standards: Standard VI INTASC Standards: 4 and 5 TEKS: 111.1 – 111.26 |
| Demonstrate content knowledge based on 6 th grade mathematics standards. | 6 th Grade Exam | TEKS: 111.26 |

Evaluation and Grading

Class and Online Assignments and Participation

6th Grade Equivalency Test

Exams

TOTAL

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F = 0-59%

30%

10%

60%

100%

NOTE: I expect that for every hour spent in class, two hours should be spent outside of class reading and working on assignments.

Teaching Strategies

1. *Online Assignments and Participation*: Students will have assignments that will be due online. Students will complete one investigative report (i.e., Place Based Learning Task) during the term that will be submitted online. Students will be required to submit video solutions of specific problems each week during the term.

2. *6th Grade Equivalency Test*: Each student will complete two 6th Grade Equivalency Tests in Mathematics during the semester. The tests will have 40-50 questions and students will have 60 minutes to complete each test. One test will be during the first week of the semester, and the second test will be during the last week of the semester. If a student scores 90% or higher on the first attempt, they do not have to take the second attempt.

3. *Exams*: The student will be required to complete four exams requiring students to solve non-routine problems covering mathematical content from the intermediate classrooms and answer questions pertaining to educational significance of problem solving in the mathematics classroom. The exams will include various types of assessment items. The exams will be cumulative throughout the semester, and no calculators will be allowed during the exams.

Required Text, Materials/Supplies, and Related Readings

Lechner, G. (2010). *Creative problem solving in school mathematics* (2nd Ed). New York: MOEMS (ISBN# 1-882144-10-4).

"A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer."

Internet Resources

TEA <http://www.tea.state.tx.us/>

National Technology Standards

<https://www.iste.org/iste-standards>

National Council of Teachers of Mathematics

<http://www.nctm.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

https://www.isbns.net/author/Creative_Publications

EAI Education www.eaieducation.com

Texas instruments <http://education.ti.com/>

AIMS www.AIMSedu.org

Eye on Education

<https://www.routledge.com/go/routledge-eye-on-education>

Casio <https://www.casio.com/us/calculators/education/>

NASCO www.eNASCO.com

Course Policies

Participation is imperative to the success in this course. Students are expected to regularly review the course management system, check email, and contribute to course assignments.

All assignments are due on or before the dates provided in Canvas. Each written assignment must be typewritten and submitted in Canvas. General guidelines for written assignments are:

1. On Time
2. Word-Processed, Double-Spaced, Times New Roman 12 Font
3. Free of typographical errors

No email attachments of assignments will be accepted. Submission deadlines are final, and links will be removed after deadline has expired. NO LATE assignments will be accepted unless a valid pre-approved or medical reason has been discussed with the professor. If an assignment is not completed on time due to a documented illness, funeral, or other university related activity, then a make-up date can be scheduled with the professor. All late assignments or non-submitted assignments will receive a score of zero points.

If an assignment is plagiarized, then the student will receive a zero for the assignment. Academic dishonesty is not tolerated. The professor reserves the right to assign a failing grade for the course and report student behavior to university officials if offenses are egregious or occur more than once.

Attendance: This course is designed and organized to be highly collaborative and experiential. Our class sessions, in particular, will involve small and whole group activities and discussions. Therefore, your attendance and participation are essential to the learning of everyone in our course. It is very difficult to be enriched by discussions and collaborations if you are not present or prepared for class. However, given the current global pandemic and all of the personal challenges

that can be associated with it, if you are unable to attend a class session, please be sure to notify me as soon as possible. Whether an excused or unexcused absence, important components to the course are still being missed. All teacher candidates are responsible for material covered during absences.

Poor or late attendance, not attending for the full class time, or lack of preparation (i.e., not completing graded or other non-graded assignments) will adversely affect your grades in this course. Specifically, you are allowed to miss ONE (1) class session without penalty, no explanation necessary. Every subsequent unexcused absence will result in 5 points being deducted from the student's final grade. Excused absences will automatically be granted for religious observances, military duty, and any UT Tyler sponsored event.

If more than 15 minutes of a class session is missed, you will be counted as absent. Three (3) tardies will count as 1 unexcused absence.

Children in Class: For those of you with children at home, please rest assured that our class sessions are friendly to children. As a parent, I completely empathize with the challenges associated with balancing your professional and personal lives right now. Please feel free to bring your children to class if you are having a childcare issue. In those instances, be sure to sit closer to the door so that you can slip in and out the classroom if needed without disrupting the rest of the class.

UNIVERSITY POLICIES

Withdrawing from Class

Students may withdraw (drop) from this course using the Withdrawal Portal. Withdrawing (dropping) this course can impact your Financial Aid, Scholarships, Veteran Benefits, Exemptions, Waivers, International Student Status, housing, and degree progress. Please speak with your instructors, consider your options, speak with your advisor, and visit the One-Stop Service Center (STE 230) or email enroll@uttyler.edu to get a complete review of your student account and the possible impacts to withdrawing. We want you to make an informed decision. UT Tyler faculty and staff are here for you and often can provide additional support options or assistance. Make sure to carefully read the implications for withdrawing from a course and the instructions on using the Withdrawal portal.

Texas law prohibits students from dropping more than six courses during their entire undergraduate career*. The six courses dropped includes those from other 2-year or 4-year Texas public colleges and universities. Consider the impact withdrawing from this class has on your academic progress and other areas, such as financial implications. We encourage you to consult your advisor(s) and Enrollment Services for additional guidance. **CAUTION #1:** Withdrawing before census day does not mean you get a full refund. Please see the Tuition and Fee Refund Schedule. **CAUTION #2:** All international students must check with the Office of International Programs before withdrawing. All international students are required to enroll full-time for fall and spring terms. **CAUTION #3:** All UT Tyler Athletes must check with the Athletic Academic Coordinator before withdrawing from a course. **CAUTION #4:** All veterans or military-affiliated students should consult with the Military and Veterans Success Center.

* Students who began college for the first time before 2007 are exempt from this law.

Artificial Intelligence Statement

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

For this course, **AI is not permitted in this course at all.** I expect all work students submit for this course to be their own. I have carefully designed all assignments and class activities to support your learning. Doing your own work, without human or artificial intelligence assistance, is best for your efforts in mastering course learning objectives. For this course, I expressly forbid using ChatGPT or any other artificial intelligence (AI) tools for any stages of the work process, including brainstorming. Deviations from these guidelines will be considered a violation of UT Tyler's Honor Code and academic honesty values.

Final Exam Policy

Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the Dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members must maintain student final examination papers for a minimum of three months following the examination date.

Incomplete Grade Policy

If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in place of a grade *only when all of the following conditions are met*: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all coursework or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor, and (c) the student presents these reasons before the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average.

The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to meet all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has yet to be assigned within one year, then the Incomplete will be changed to an F, or NC. If the course was initially taken under the CR/NC grading basis, this may adversely affect the student's academic standing.

Grade Appeal Policy

Disputes regarding grades must be initiated within sixty (60) days from the date of receiving the final course grade by filing a Grade Appeal Form with the instructor who assigned the grade. A grade appeal should be used when the student thinks the final course grade awarded does not reflect the grades earned on assessments or follow the grading scale as documented in the syllabus. The student should provide the rationale for the grade appeal and attach supporting document about the grades earned. The form should be sent via email to the faculty member who assigned the grade. The faculty member reviews the rationale and supporting documentation and completes the instruction section of the form. The instructor should return the form to the student, even if a grade change is made at this level. If the student is not satisfied with the decision, the student may appeal in writing to the Chairperson of the department from which the grade was issued. In situations where there is an allegation of capricious grading, discrimination, or unlawful actions, appeals may go beyond the Chairperson to the Dean or the Dean's designee of the college from which the grade was issued, with that decision being final. The Grade Appeal form is found in the [Registrar's Form Library](#).

NOTE: The Grade Appeal Form is different from the Application for Appeal form submitted to the Student Appeals Committee, which does not rule on grade disputes as described in this policy.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA), the University of Texas at Tyler offers accommodations to students with learning, physical, and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder,

chronic illness, TBI, PTSD, ADHD, or a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler/> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with the Assistant Director Student Accessibility and Resources/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <https://www.utt Tyler.edu/disability-services>, the SAR office located in the Robert Muntz Library, LIB 460, email saroffice@utt Tyler.edu, or call 903.566.7079."

Military Affiliated Students

UT Tyler honors the service and sacrifices of our military-affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with your faculty member if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make your faculty member aware of any complications as far in advance as possible. Your faculty member is willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. The [Military and Veterans Success Center \(MVSC\)](#) has campus resources for military-affiliated students. The MVSC can be reached at MVSC@utt Tyler.edu or via phone at 903.565.5972.

Students on an F-1 Visa

To remain in compliance with Federal Regulations requirements you must do the following:

- Traditional face-to-face classes: Attend classes on the regular meeting days/times.
- Hybrid Classes: Attend all face-to-face classes convened by the instructor according to the schedule set for your specific course.
- Online course: Only one online course can count toward your full-time enrollment. Students are expected to be fully engaged and meet all requirements for the online course.

Academic Honesty and Academic Misconduct

The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Therefore, we enforce the [Student Conduct and Discipline policy](#) in the Student Manual Of Operating Procedures (Section 8).

FERPA

UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in [University Policy 5.2.3](#). The course instructor will follow all requirements to protect your confidential information.

Absence for Official University Events or Activities

This course follows the practices related to [Excused Absences for University Events or Activities](#) as noted in the Catalog.

Absence for Religious Holidays

This course follows the practices related to [Excused Absences for Religious Holy Days as noted in the Catalog](#).

Absence for Pregnant Students

This course follows the requirements of Texas Laws SB 412, SB 459, SB 597/HB 1361 to meet the needs of pregnant and parenting students. Part of the supports afforded pregnant students includes excused absences. Faculty who are informed by a student of needing this support should make a referral to the Parenting Student Liaison. NOTE: Students

must work with the Parenting Student Liaison in order to receive these supports. Students should reach out to the Parenting Student Liaison at parents@uttyler.edu and also complete the [Pregnant and Parenting Self-Reporting Form](#).

Campus Carry

We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.

UT Tyler Resources for Students:

- [UT Tyler Student Accessibility and Resource \(SAR\) Office](#) (provides needed accommodations to students with document needs related to access and learning)
- [UT Tyler Writing Center](#)
- [The Mathematics Learning Center](#)
- [UT Tyler PASS Tutoring Center](#)
- [UT Tyler Supplemental Instruction](#)
- [Upswing \(24/7 online tutoring\)](#) - covers nearly all undergraduate course areas
- [Robert Muntz Library](#) and [Library Liaison](#)
- [Canvas 101](#) (learn to use Canvas, proctoring, Unicheck, and other software)
- LIB 422 -- Computer Lab where students can take a proctored exam
- [The Career Success Center](#)
- [UT Tyler Testing Center](#)
- [Office of Research & Scholarship Design and Data Analysis Lab](#)
- [UT Tyler Counseling Center](#) (available to all students)
- [MySSP App](#) (24/7 access to Student Support Program counseling through phone or chat and online wellness resources available in a variety of languages)
- [Student Assistance and Advocacy Center](#)
- [Military and Veterans Success Center](#) (supports for our military-affiliated students)
- [UT Tyler Patriot Food Pantry](#)
- [UT Tyler Financial Aid and Scholarships](#)
- [UT Tyler Student Business Services](#) (pay or set up payment plans, etc.)
- [UT Tyler Registrar's Office](#)
- [Office of International Programs](#)
- [Title IX Reporting](#)
- [Patriots Engage](#) (available to all students. Get engaged at UT Tyler.)

COLLEGE OF EDUCATION AND PSYCHOLOGY (CEP) VISION AND MISSION

CEP 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.

CEP 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.

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](#).

Tentative Course Outline: (The instructor reserves the right to adapt this outline as needed during the semester.)

| Week | Dates | Topic |
|------|------------------------|--|
| 1 | August 26-September 1 | Read Course Syllabus and Overview |
| | September 2 | Labor Day Holiday-No Class |
| 2 | September 3-8 | First 6 th Grade Test September 5 |
| 3 | September 9-15 | Historical Perspective of Problem Solving (PS) and Work Problems (PS1 Due) |
| 4 | September 16-22 | Work Problems (PS2 AND PS3 Due) |
| 5 | September 23-29 | Exam 1 September 26 |
| 6 | September 30-October 6 | Work Problems (PS4 Due) |
| 7 | October 7-13 | Work Problems (PS5 Due) |
| 8 | October 14-20 | Work Problems (PS6 AND PS7 Due) |
| 9 | October 21-27 | Exam 2 October 24 |
| 10 | October 28-November 3 | Work Problems (PS8 Due) |
| 11 | November 4-10 | Work Problems (PS9 Due) |
| 12 | November 11-17 | Work Problems (PS10 Due) |
| 13 | November 18-24 | Second 6 th Grade Test November 21 |
| | November 25-29 | Thanksgiving Holidays-No Class |
| 14 | December 2-8 | Exam 3 December 5 and Place-Based Project Due December 8th |
| 15 | December 9-13 | Final Exam Date |
| | December 14 | End of Fall Term |