

EDUC 4313: Teaching Mathematics in the Middle and High School, Fall 2023

Face to Face

Monday 4:30-5:50pm BEP 218

Instructor Information

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Office: BEP 247D

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: October 30, 2023

Course Catalog Description

Study of mathematics curriculum, materials, and selected instructional techniques in the middle and high school.

Prerequisite: Successful completion of all Phase II courses.

Student Learning Outcomes & Assessments

Course Topics and/or Student Learning Outcomes The student is expected to demonstrate...	Assessment (including performance-based)	Standards Alignment
Demonstrate an understanding of teaching mathematics in the middle and high school classrooms	Homework/Quizzes In-class group work Exams Professional Mathematics Teaching Portfolio	TEKS (b) (1): Mathematical process standards Middle School TEKS (c) (1): Mathematical process standards High School Texas Educator Standards: 1bi, 1bii, 1biii, 1ci, 1cii; 2bi, 2bii, 2biii, 2ci, 2cii; 3aii, 3aiii, 3bi, 3bii, 3biii, 3ci, 3cii. INTASC Standards: 1, 2, 4, 5 and 8
Demonstrate an understanding of mathematical processes and reasoning	Homework/Quizzes In-class group work Exams Professional Mathematics Teaching Portfolio	TEKS (b) (1): Mathematical process standards Middle School TEKS (c) (1): Mathematical process standards High School Texas Educator Standards: 3A, 3C INTASC Standards: 4, 5
Solve mathematical problems and make connections within and outside of mathematics	Homework/Quizzes In-class group work Exams Professional Mathematics Teaching Portfolio	TEKS (b) (1): Mathematical process standards Middle School TEKS (c) (1): Mathematical process standards High School Texas Educator Standards: 3A, 3C INTASC Standards: 4, 5
Ability to garner information about and assess middle and high school grades students' mathematical thinking	Homework/Quizzes In-class group work Exams Professional Mathematics Teaching Portfolio	TEKS (b) (1): Mathematical process standards Middle School TEKS (c) (1): Mathematical process standards High School Texas Educator Standards: 5ai, 5aii INTASC Standards: 6

Evaluation and Grading

Homework/Quizzes	20%
In-class Group Work	10%
Midterm Exam	15%
Final Exam	20%
Professional Mathematics Teaching Portfolio	35%

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.

Teaching Strategies

1. *Homework/Quizzes*: Students will be assigned homework at the end of each class session. Homework may consist of assigned questions related to readings in our course texts, supplementary technology labs, mathematics problems, reflective essays, or curriculum analyses. I encourage you to form study groups outside class where you can work with peers to check and discuss homework problems. If you have trouble with assignments, please come to see me during office hours (as scheduled, or by appointment) as soon as possible. On some days, homework will be collected for a grade. On other days, you will be given a brief 5-minute quiz at the beginning of our class sessions (4:30-4:35 pm), and this quiz will count for your homework grade for the day. Quiz questions will be based on the assigned homework from the previous class session. There are no make-up quizzes, so if you are absent or arrive late, you will not be able to take the quiz. You are free to use your calculator, manipulatives, textbook, and notebook during the quizzes. Your lowest two homework grades will be dropped at the end of the semester.

2. *In-class Group Work*: You will be assigned to a group on the second day of class. Each group will have a folder that I will distribute at the beginning of each class session. The folder will contain the attendance sign-in sheet and documents necessary for in-class group work. Daily class participation in your groups (and as a whole class) is a key component to this course. Each group will turn in one copy of the in-class assignment and each member of the group will receive the same grade on that assignment. If you miss class, you will receive no credit for the in-class work. If you are late to class, you will receive partial credit for the in-class work. Part of your in-class group work grade will be determined by your participation throughout the semester. Your lowest two in-class group work grades will be dropped at the end of the semester.

3. *Exams*: You should bring your calculator for use on all exams. **No make-up exams will be permitted.** Please notify me in advance if you expect to be absent during an exam. Otherwise, a missed exam will result in a grade of 0.

4. *Professional Mathematics Teaching Portfolio*: You will compose a professional mathematics teaching portfolio in this course. It is important to note that for this assignment there are multiple components, including:

1. Mission statement
2. Professional resume
3. Teaching philosophy statement
4. Interviews with middle/high school grades students
5. Video analysis
6. Research analysis
7. Example of an exemplary lesson

Please read carefully the guidelines for this professional mathematics teaching portfolio assignment (posted on Canvas).

Required Texts, Materials/Supplies, and Related Readings

- National Council of Teachers of Mathematics (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: Author. (You can purchase either e-version or paperback version through www.nctm.org.)
- Smith, M. S., & Stein, M. K. (2018). *5 practices for orchestrating productive mathematics discussions* (2nd ed.). Reston, VA: National Council of Teachers of Mathematics (NCTM).

"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. 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

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 [University Guidelines, Links and Policies.](#)

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

COLLEGE OF EDUCATION AND PSYCHOLOGY (CEP) VISION AND MISSION

Vision: The College of Education and Psychology is nationally recognized and respected for its academic programs and opportunities. It is a center of academic excellence, scholarly inquiry, and public service. The College prepares leaders to meet the critical challenges of the 21st Century through productive contributions to local and global communities and toward individual and cultural equity.

Mission: The mission of the College of Education and Psychology is to provide a positive environment that fosters the acquisition of knowledge and skills. The mission is individually and collectively realized through a community of scholars that contributes to knowledge through scholarly inquiry; organizes knowledge for application, understanding and communication; and provides leadership and service. We affirm and promote global perspectives that value individual and cultural diversity to enhance learning, service, and scholarship.

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 21-27	Read Course Syllabus and Overview, Orientation Teaching Mathematics in the 21 st Century
2	August 28-September 3	Exploring What It Means to Know and Do Mathematics
	September 4	Labor Day Holiday-No Class
3	September 5-10	Effective Teaching and Learning Orchestrating Mathematical Discussions, Introducing the 5 Practices
4	September 11-17	Establish Mathematics Goals to Focus Learning Setting Goals for Instruction
5	September 18-24	Implement Tasks that Promote Reasoning and Problem Solving Selecting an Appropriate Task/Identifying Worthwhile Mathematical Tasks
6	September 25-October 1	Use and Connect Mathematical Representations Investigating the 5 Practices in Action

7	October 2-8	Midterm Exam
8	October 9-15	Facilitate Meaningful Mathematical Discourse Determining the Direction of the Discussion: Selecting, Sequencing, and Connecting Students' Responses
9	October 16-22	Pose Purposeful Questions Ensuring Active Thinking and Participation: Asking Good Questions and Holding Students Accountable
10	October 23-29	Build Procedural Fluency from Conceptual Understanding Planning in the Problem-Based Classroom
11	October 30-November 5	Support Productive Struggle in Learning Mathematics Equity
12	November 6-12	Elicit and Use Evidence of Student Thinking Assessment
13	November 13-19	Peer Teaching Lesson
	November 20-24	Thanksgiving Holidays-No Class
14	November 27-December 3	Portfolio
15	December 4-9	Final Exam
	December 9	End of Fall Term