EDEE 4350: MATHEMATICS IN ELEMENTARY GRADES EC-8
SPRING 2021

Instructor:	Heather Steen
Preferred Name:	Heather/Ms. Steen/Professor Steen
Class Sections:	EDEE 4350.013/014; Mondays 12:00-2:50pm
Virtual Office Hours:	Synchronous: Mondays, 30 minutes after class Asynchronous: Mondays, 12:00 p.m.-12:30 p.m. Anytime, by appointment
Office Location:	My House/Zoom! ☺

E-mail Address: heather.steen@unt.edu; please allow 24 hours for email responses during weekdays. Responses may not be sent between 8pm and 8am on weekdays or on weekends.

Class Meetings: 12:00 pm – 2:50 p.m. via zoom every other Monday starting on January 11, 2021 using Zoom Personal Meeting Room https://unt.zoom.us/j/3138622640
Please see our course calendar for all Zoom meeting dates.

Course Canvas Page: https://unt.instructure.com

CATALOG DESCRIPTION

Principles in mathematics teaching and learning based on national curriculum, and assessment standards. The learning process in the development of mathematical thinking and skills in children. Students observe mathematics instruction and materials in real settings and experience firsthand the scope and sequence of mathematics in a primary/elementary/middle school setting. Assignments, directed field experiences, and other class activities take place on site in a school setting.

PREREQUISITES

Admission to the teacher education program, which includes participation in a field-based program, EDEE 3320, 3380; all courses in the reading/English/language arts part of the academic major; required core and academic major math courses and DFEC classes.

COURSE GOALS

This course is designed to help you transition from being a learner of mathematics to a teacher of mathematics.

In this course we will explore three themes: What mathematics? For whom? For what purpose? (Aguirre, Mayfield-Ingram, & Martin, 2013):

1. What mathematics?

- What mathematics concepts are children expected to learn in school and when? How can we teach these concepts in ways that are relevant to students' lives?
- What mathematical understandings do children bring to the classroom and how can we leverage those in our mathematics instruction?
- What mathematics standards and resources can teachers draw from when developing and implementing mathematics lessons?
- What teaching practices can we use to promote equitable and rigorous mathematics teaching and learning?

2. For Whom?
   - Who is a mathematician? What popular myths and stereotypes are associated with who is or isn't mathematically competent?
   - How are our mathematics identities shaped by our mathematics learning experiences, and how does that consequently impact our teaching of mathematics?
   - How do we center the experiences, identities, and mathematical understandings of ALL students especially those from traditionally marginalized groups in mathematics?
   - How do we teach mathematics to students from diverse cultural, racial, social, and linguistic backgrounds?
   - How do we partner with parents and communities in our mathematics teaching and learning?

3. For What Purpose?
   - Why is mathematical literacy important? How can we explore the beauty and power of mathematics with our students?
   - What is the role of assessment and how can we learn to assess students effectively?
   - In what ways has mathematics been used to oppress groups of students and how can we promote humanizing mathematics instruction?
   - How can we provide opportunities for our students to engage with mathematics in ways that allow them to critically examine their world and confront social injustices?

This course is not designed to turn you into an expert mathematics teacher. Instead, it aims to help you become a "well-started novice": a prospective teacher who has thought hard about some of the central questions in mathematics learning and teaching, who has ideas about these questions that they can defend articulately using applicable research, who knows about reformed-based mathematics teaching and resources available to teachers, and who has the tools needed to become an advocate of and agent for equitable and justice-oriented mathematics education.

COURSE TEXTS

Required:
Van de Walle, J., Karp, K., & Bay-Williams, J. (2019). *Elementary and Middle School Mathematics: Teaching Developmentally* (10th ed.). Boston: Pearson Education, Inc. (Note: 9th ed is acceptable, but any previous edition is not.)

Aguirre, J., Mayfield-Ingram, K., & Martin, D. (2013). *The impact of identity in K-8 mathematics: Rethinking equity-based practices*. The National Council of Teachers of Mathematics.

Recommended:

Carpenter, T., Fennema, E., Franke, M. L., Levi, L., & Empson, S. B. (2015). *Children's Mathematics: Cognitively Guided Instruction*. Portsmouth, NH: Heinemann. 2nd Edition

National Council of Teachers of Mathematics – Student e-Membership (http://www.nctm.org/Membership/Membership-Options-for-Individuals/)

- Sign up for student membership ($49)
- Membership includes complimentary registration to regional meetings, e-access to all journals and learning resources, and 30% discount on purchases through the web site.

Electronic Resources:
National Council of Teachers of Mathematics: www.nctm.org
Math TEKS: http://ritter.tea.state.tx.us/rules/tac/chapter111/index.html
Common Core Math Standards: http://www.corestandards.org/Math/

COURSE ASSIGNMENTS

Every week you will be evaluated on your participation and engagement with our class activities and discussion of course readings. Here is a brief description of these assignments. Full descriptions can be accessed on our class Canvas page.

- ***Weekly Engagement*-10%**
  To effectively engage in this class you are expected to:
  - Prepare for and actively participate in synchronous class discussions and activities
  - Interact with designated course materials (e.g., PowerPoint slides) outside of synchronous sessions

- ***Discussion of Course Readings*-10%**
  A significant requirement of this course is to read and engage in the professional literature and research that explore and explain various aspects of learning and teaching mathematics. Because many of us have limited experiences as students in classrooms based on reform methods, it is often difficult to consider how to teach in this manner. To consider changes in pedagogical strategies, you will be required to reflect on each week's

readings through discussion boards on Canvas as well as in small group and whole discussions during our synchronous class sessions.

In addition to weekly engagement and discussion of course readings, you will also be required to complete ***4 major assignments*** throughout the semester that are described below. Full assignment descriptions can be found on our class Canvas page.

MAJOR ASSIGNMENTS
❖ ***Math (Auto)Biography; 20%; due January 25*** You will write your math autobiography that details your experience learning mathematics as a child. You will also write the math biography of a "significant person" in your life (e.g. parent, grandparent, sibling, best friend) after conducting an interview with that person. Finally you will compare your experiences with that of your "significant person".
❖ ***Math Newsletter; 20%; due February 22*** You will create a grade-specific newsletter for parents around a specific math unit. You will also create an interactive calendar with math activities designed to incorporate students' families and draw from their communities.
❖ ***Math and Social Justice Professional Development Workshop; 20%; due April 5*** ❖ ***Math and Social Justice Professional Development Workshop, Peer Reflection; due April 19*** In this group assignment, you will create and conduct a professional development workshop that describes a mathematics lesson that investigates a social justice issue.
❖ ***Final Course Reflection; 10%; due April 26*** For this assignment you will reflect on the development of your understanding of mathematics education and your role as a math educator over the course of the semester. In this reflection you will be expected to discuss any impacts that the global pandemic has had on this development.

COURSE EVALUATION

Weekly Engagement	10%
Discussion of Readings	10%
Math (Auto)Biography	20%
Math Newsletter	20%
Math and Social Justice Professional Development Workshop	30%
Final Reflection	10%
Total	**100%**

A = 90-100%B = 80-89%C = 70-79%D = 60-69%F = 0-59%

COURSE SCHEDULE

Week	Date	Topics Covered	Assignments
Module 1: Math Standards and Equity-Based Practices			
1	Jan 11 (Zoom)	Course Overview Standards Intro to Equity-Based Practices Intro to 5 Practices	Intro Video WE #1 (5 PM on Jan 12)
	Jan 18	MLK Jr Day (No Class)	
2	Jan 25		RR #1A,B,C IoI Ch 1 TD Ch 1, pgs 1-8; Ch 2, pgs 25-29 3 Phrases... WE #2 (Jan 26) **Math (Auto)Biography**
Module 2: Teaching Early Number Sense and Place Value			
3	Feb 1 (Zoom)	Content Number Sense and Place Value Pedagogy Teaching for Problem Solving Identities, Agency, and Mathematical Proficiency Linguistically Diverse Students	RR #2 WE #3
4	Feb 8		RR #3 WE #4
Module 3: Teaching Addition and Subtraction			
5	Feb 15 (Zoom)	Content Place Value, Addition, and Subtraction of Whole Numbers Pedagogy Math Teacher Identity	RR #4 WE #5
6	Feb 22		RR #5 WE #6 **Math Newsletter**
Module 4: Teaching Multiplication and Division			
7	Mar 1 (Zoom)	Content Multiplication and Division of Whole Numbers Pedagogy Cultivating Mathematical Agency Building on Students' Strengths	RR #6 WE #7
8	Mar 8		RR #7 WE #8
Module 5: Teaching Algebraic Reasoning and Relations			
9	Mar 15 (Zoom)	Content Algebraic Reasoning and Relations Pedagogy Assessment	RR #8 WE #9
10	Mar 22		RR #9 WE #10

Module 6: Teaching Fraction Concepts and Operations			
11	Mar 29 (Zoom)	<u>Content</u> Fraction Concepts & Operations <u>Pedagogy</u> Engaging Parents Engaging Communities	RR #10 WE #11
12	Apr 5		RR #11 WE #12 **Math and Social Justice PD**
Module 7: Teaching Geometry, Measurement and Data and Statistics			
13	Apr 12 (Zoom)	<u>Math Content</u> Geometry and Measurement Concepts and Data and Statistics <u>Pedagogy</u> Rights of the Learner	RR #12 WE #13
14	Apr 19		RR #13 WE #14 **Math and Social Justice PD Peer Reflection**
15	Apr 26 (Final)		**Final Course Reflection**

IoI=Impact of Identity text
TD=Teaching Developmentally text
RR=Reading Response
WE=Weekly Engagement

Major Assignments

Assignment Policies: All grades/points for assignments are final. If you have any questions about grades/points earned for assignments, make an appointment to see me during office hours or send me an email. I will not discuss grades/points during class time.

All deadlines are final. All major assignments are due on Canvas by 11:59pm on the due date (e.g., an assignment due on April 5 is due by 11:59pm on April 5). Reading responses are due by 11:59pm **the night before** our scheduled class time regardless of whether we are meeting via Zoom or not (e.g., RR #1 is due by 11:59 on January 24). Weekly Engagements are due every Tuesday by 11:59 PM.

All assignments must be submitted in the designated area on our class Canvas page. All written items should include a professional standard of spelling, grammar and punctuation. Cohesion of thought, clarity of expression, depth of reading, analysis of issues and relevance of discussion will need to be evident. Standard requirements for each assignment is 12 point font, double-spacing, appropriate APA referencing style, use of headings and subtitles if necessary and reference lists.

The following rubric will be used across all assignments for this course unless otherwise specified with assignment.

Module Assignment Grading Guide: Unless grading criteria are specified for the assignment	
A score≥90% Excellent	***Exceeds or meets ALL of the following:*** Submission is completed thoughtfully and with depth. It shows a commitment to learning and to the content of this course. It addresses the assignment requirements but also appears to be personally meaningful and/or relevant. Language/communication is professional and appropriate to the audience. Connections are made to other components of the course (e.g., readings, discussions, assignments).
B 80%≤score<90% Good	***Meets most or many of the following:*** Submission addresses the assignment requirements. Language/communication is professional and appropriate to the audience. Connections are made to other components of the course (e.g., readings, discussions, assignments).
C 70%≤score<80% Developing	***Meets some of the following:*** Submission addresses the assignment requirements. Language/communication is professional and appropriate to the audience. Connections are made to other components of the course (e.g., readings, discussions, assignments).
<C <70% Unsatisfactory	***Meets very few or none of the following:*** Submission addresses the assignment requirements. Language/communication is professional and appropriate to the audience. Connections are made to other components of the course (e.g., readings, discussions, assignments). .

COURSE POLICIES

Canvas: Our course Canvas page is the hub where all things related to our course are located. All assignments should also be uploaded there. Please do not email assignments to me. Email announcements will also be sent from Canvas to your UNT email address so be sure to check your email regularly.

Attendance: This course is designed and organized to be highly collaborative and experiential. Our synchronous 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 zoom session, please be sure to notify me **as soon as possible**. All zoom sessions will be recorded and made available on Canvas. If missing class is unavoidable, it is your responsibility to review this zoom recording and any additional materials discussed in class.

Poor or late attendance, not attending for the full class time, or lack of preparation (i.e., not completing reading assignments or other non-graded assignments) will adversely affect your grades in this course. Specifically, you are allowed to miss **ONE (1)** synchronous session without penalty, no explanation necessary. Any unexcused absence beyond one absence will result in a loss of engagement points for that week's class. Excused absences will automatically be granted for religious observances, military duty, and any UNT-sponsored event.

If more than 15 minutes of a synchronous 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 synchronous sessions are friendly to children. I know there are challenges associated with balancing your professional and personal lives rights now. Feel free to turn your camera off or mute your microphone if your environment becomes too distracting to the rest of the class.

Zoom Etiquette: I recognize that you have the option to turn your cameras on or off depending on conditions in the location where you are attending our class remotely. While I would prefer that you keep your cameras on, especially during class discussions, it is not required. That said, if you do choose to keep your cameras on and are concerned about privacy issues there is an option in zoom that allows you to choose a virtual background so that only you are visible. Also, if you choose to turn your camera off, please consider including a picture of yourself (either real or a caricature, like bitmoji) so that there isn't a blank screen.

Please do not record or take a screenshot of our zoom sessions without my consent or the consent of your classmates. While I will record our zoom sessions, some portions of sessions will not be recorded. Also, only classmates and myself will have access to the recordings.

Mathematics Generalist EC-6 Standards

Standard I. *Number Concepts:* The mathematics teacher understands and uses numbers, number systems and their structure, operations and algorithms, quantitative reasoning, and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics.

Standard II. *Patterns and Algebra:* The mathematics teacher understands and uses patterns, relations, functions, algebraic reasoning, analysis, and technology appropriate to teach the statewide curriculum (TEKS) in order to prepare students to use mathematics.

Standard III. *Geometry and Measurement:* The mathematics teacher understands and uses geometry, spatial reasoning, measurement concepts and principles, and technology appropriate to teach the statewide curriculum (TEKS) in order to prepare students to use mathematics.

Standard IV. *Probability and Statistics:* The mathematics teacher understands and uses probability and statistics, their applications, and technology appropriate to teach the statewide curriculum (TEKS) in order to prepare students to use mathematics.

Standard V. *Mathematical Processes:* The mathematics teacher understands and uses mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically.

Standard VI. *Mathematical Perspectives:* The mathematics teacher understands the historical development of mathematical ideas, the interrelationship between society and mathematics, the structure of mathematics, and the evolving nature of mathematics and mathematical knowledge.

Standard VII. *Mathematical Learning and Instruction:* The mathematics teacher understands how children learn and develop mathematical skills, procedures, and concepts, knows typical errors students make, and uses this knowledge to plan, organize, and implement instruction; to meet curriculum goals; and to teach all students to understand and use mathematics.

Standard VIII. *Mathematical Assessment:* The mathematics teacher understands assessment and uses a variety of formal and informal assessment techniques appropriate to the learner on an ongoing basis to monitor and guide instruction and to evaluate and report student progress.

Standard IX. *Professional Development:* The mathematics teacher understands mathematics teaching as a profession, knows the value and rewards of being a reflective practitioner, and realizes the importance of making a lifelong commitment to professional growth and development.

Pedagogy and Professional Responsibilities Standards (EC-Grade 12)

Standard I. The teacher designs instruction appropriate for all students that reflects an understanding of relevant content and is based on continuous and appropriate assessment.

Standard II. The teacher creates a classroom environment of respect and rapport that fosters a positive climate for learning, equity and excellence.

Standard III. The teacher promotes student learning by providing responsive instruction that makes use of effective communication techniques, instructional strategies that actively engage students in the learning process and timely, high-quality feedback.

Standard IV. The teacher fulfills professional roles and responsibilities and adheres to legal and ethical requirements of the profession.

All Professional Standards approved by the State Board for Educator Certification can be found online: https://tea.texas.gov/Texas_Educators/Preparation_and_Continuing_Education/Approved_Educator_Standards/

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

Conceptual Framework: 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).

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.

The **Department of Teacher Education and Administration** seeks to improve educational practice through the generation of knowledge and to prepare education professionals who serve all students in an effective, inclusive and equitable manner. Its focus is on the preparation of highly competent educators, researchers and administrators who employ current theory and research as they fill these important roles.

Mission

The Department of Teacher Education and Administration integrates theory, research, and practice to generate knowledge and to develop educational leaders who advance the potential of all learners.

Vision

We aspire to be internationally recognized for developing visionary educators who provide leadership, promote social justice, and effectively educate all learners.

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

ADA Accommodation Statement. UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website at disability.unt.edu.

Course Safety Procedures (for Laboratory Courses). Students enrolled in [insert class name] are required to use proper safety procedures and guidelines as outlined in UNT Policy 06.038 Safety in Instructional Activities. While working in laboratory sessions, students are expected and required to identify and use proper safety guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment and tools, handling chemical solutions and hot and cold products. Students should be aware that the UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are

injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

Emergency Notification & Procedures. UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course.

Foliotek ePortfolio (where applicable). Foliotek is a software data management system (DMS) 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 evidences/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://coe.unt.edu/educator-preparation-office/foliotek

Student Evaluation Administration Dates. Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via *IASystem* Notification" (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey, they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website at www.spot.unt.edu or email spot@unt.edu.

Sexual Assault Prevention. UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648.