

DEPARTMENT OF TEACHER EDUCATION & ADMINISTRATION
COLLEGE OF EDUCATION - UNIVERSITY OF NORTH TEXAS
EDEE 4350.015 (Keller): Mathematics in Grades EC-8
Spring 2019

Location: Keller ISD
Basswood ES
Room 116

Class Dates and Times: Mondays 8:00-10:50

Office Hours: Mondays from 10:50-11:20,
or by appointment

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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 the student transition from being a learner of mathematics to a teacher of mathematics. This transition culminates with the mathematics courses (MATH 1350/1351) taken prior to this course (EDEE 4350). During this transition, the student should develop from being able to “do” mathematics to being able to analyze and understand mathematical concepts taught in elementary/middle school. The student should concentrate on changing from learner of mathematics to a teacher of mathematics, focusing on the child as a learner and how you as the teacher can facilitate his/her learning of mathematics.

Like many careers, mathematics education has its “tools of the trade.” While you may not have learned mathematics using tools and technology or team settings the first time around, you will be expected to use them in your classroom. We will be using tools and technology to model mathematics ideas and to help you gain a deeper understanding of mathematical concepts taught in elementary/middle school.

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.)

Recommended:

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.

FolioTek

This course is part of the elementary education program which uses FolioTek as an online portfolio for all students to upload essential elements to demonstrate skills and proficiency. Details regarding what must be included in each student's portfolio will be provided by faculty.

Electronic Resources

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

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

Mathematical Mindset: www.youcubed.org

Bloom's Taxonomy: http://en.wikipedia.org/wiki/Bloom's_Taxonomy

Learning Objectives:

1. Student(s) will understand mathematical concepts that enable them to teach mathematics to young children with confidence, competence, creativity, and capacity.
 - 1.1 Confidence; The students will examine previous experiences in relationship to current coursework and field experience in order to develop confidence as a future teacher of mathematics
 - 1.2 Competence; The student(s) will develop competence by successful completion and understanding of the concepts in this course.
 - 1.3 Creativity; The student(s) will recognize the use of creativity in understanding and teaching mathematics.
 - 1.4 Capacity; The student(s) will develop their capacity to create meaningful mathematical experiences for their future students.
2. Student(s) will develop a pedagogical understanding of mathematical perspectives, learning, instruction, assessment, and reflective practice.
 - 2.1 Students will understand mathematics, learning, instruction, assessment, and reflective practice from a pedagogical perspective.
 - 2.2 Students will develop a pedagogical understanding of 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 mathematics.
 - 2.3 Students will develop a pedagogical understanding of assessment and use a variety of formal and informal assessment techniques appropriate to the learner on the ongoing basis to monitor and guide instruction and to evaluate and to report student progress.
 - 2.4 Students will develop a pedagogical understanding of mathematics teaching as a profession, know the values and rewards of being a reflective practitioner and realizes the importance of making a lifelong commitment to professional growth and development.

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/

COURSE ASSIGNMENTS & EVALUATION

1. Weekly Engagement	10%
2. Discussion of Course Readings	20%
3. Field Inquiry Project	20%
4. Mathematics Interaction Project	30%
5. Final Project	20%

Total: 100%

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

All course assignments are due at the beginning of class except where indicated in the syllabus. Electronic assignments must be submitted to the course website and/or Foliotek.

Weekly Engagement (10%)

To be effectively engaged in this class the teacher candidate will need to:

- *Be prepared by reading and reflecting on assigned material each week.*
- *Show involvement in class through participation in class discussion.*
- *Demonstrate purposeful engagement with activities during class time.*

Participation will be graded weekly on a 4-point scale, as follows:

- Daily Grade of 3 points for participating in the activities in class
- Engagement grade of 1 point for leading class in a discussion, activity or assessment

Per departmental policy, attendance is mandatory.

This course is designed and organized to be highly collaborative and experiential. It will involve literature discussion groups, and small and large group discussions. Therefore, teacher candidates' attendance and participation are essential to learning. It is not possible to be enriched by discussions and collaborations if one is not present or prepared for class. If a teacher candidate decides to miss an entire class period or part of it for any reason, then full participation credit for that class session will not be given. Involvement in class activities cannot be made up, thus it is imperative that all are present and prepared for each class session. 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 grades for this course. If more than 30 minutes of class time is missed, the teacher candidate will be counted as absent. 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.

The instructor's policy regarding attendance is as follows:

- 2 absences = final grade in the course will be lowered by one full letter grade
- 3 absences = final grade in the course will be lowered by two full letter grades
- 4 absences = F in the course
- 3 tardies = 1 absence (arriving > 15 minutes late *and/or* leaving > 15 minutes early)

Discussion of Course Readings (20%)

A significant aspect of this course is to read and engage in the professional literature and research in education that explores and explains what it means to teach mathematics conceptually. 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, each week that a reading assignment is due, part of class time will be dedicated to group discussions. Groups will be determined the first week of class, but the instructor reserves the right to change them if issues occur. The roles for each group member (rotated weekly) are as follows: 1) Discussion Director; 2) Word Wizard 3) Connector; and, 4) Quizzer.

Each group member must post their contribution **no later than 11:59 pm the night before class**. Scores for the rubric will be submitted by the quizzer at the end of each discussion and recorded as part of the weekly grade for this category. A maximum score of 4 points can be earned each week. See the class web page for specific details regarding roles and expectations, due dates and rubric.

Field Inquiry Paper (20%)

The PDS 1 field experience provides pre-service teachers the opportunity to learn about beliefs, principles, and practices of teachers in placement schools. This knowledge will help develop pre-service teachers' own beliefs, principles, and practices. To be successful with this work, an inquiry paper is required as a reflection on information gathered by interviewing and observing at least 2 teachers, including the cooperating teacher. ***This paper is designed to focus on what has been learned about the challenges and possibilities of teaching in general and for each subject area.*** Ideas discussed in the paper must be supported by teacher quotes, notes from the observation, and course texts or activities. See the class website for rubric and for due dates.

Mathematics Interaction Project (30%)

Each pre-service teacher will spend approximately 30 minutes each week interacting with 1-2 children (EC-8, based on your area of certification) in or out of a school environment for a total of five interactions. The interaction will be focused on mathematics. Activities will depend on various factors: the age of the child, her/his mathematical development, his/her interests. At the completion of each session, a reflection on experiences from the session must be recorded.

The first interaction is to meet the student(s), building rapport to get to know the child and explaining that this is not a tutoring session, as well as administering a pre-assessment. (Sample pre-assessments will be provided depending on your topic.) Then Plans of Action will be due prior to the third interaction. Interactions 2, 3, 4, and 5 will be over the SAME topic that was pre-assessed. A post-assessment will be administered as the final (5th) interaction, and the pre-service teacher is expected to write-up a comparison analysis of the pre- and

post-assessments based on the three focused interactions. See the class website for rubric and due dates, for when the interactions will be checked in class, and when the submissions for all artifacts of the interviews are due. The completed project must be uploaded to the class website to receive credit.

Final Project (20%)

The final project includes two parts:

(1) Newsletter:

Create a newsletter to parents that describes your mathematics curriculum for the first 6/9 weeks of school as well as a brief description of your philosophy on teaching and learning.

The newsletter is to be informative, telling parents what will be happening in your classroom during the first 6/9 weeks as well as validating and supporting your stance with theory from readings from this class or done in other classes. (Be sure to include all references.)

(2) Model lesson plan:

Create a model lesson plan that is mentioned in your newsletter to demonstrate what you have learned from the course assignments and activities. You are encouraged to select a concept and grade for the following semester's field experience. The lesson plan must include the UNT Template as well as an attached full 5E lesson plan. The lesson will be presented to the class during the assigned finals time for this course, and it is to be conducted in a professional manner. Hands-on materials and/or technology must be included in the presentation.

The final project with supporting documents must be uploaded on the class website. See the website for due date and rubric. All members of the class will be able to access the units for viewing and sharing. The final project may be completed with a partner.

Texas Essential Knowledge and Skills (TEKS)

http://www.tea.state.tx.us/index2.aspx?id=6066&menu_id=2147483671&menu_id2=794

Class activities, readings (van de Walle text & supplemental articles), and discussions address the TEKS mathematics standards for grades K-8 for

- Underlying processes and mathematical tools
- Number, operation, and quantitative reasoning
- Patterns, relationships, and algebraic thinking
- Geometry and spatial reasoning
- Measurement
- Probability and statistics

General Classroom Policies:

- All course readings must be read before class.
- Be punctual to class – if you are late, see the course instructor after class.
- Please be respectful by not speaking while others are presenting during class.
- Please do not eat in class.
- All grades/points for assignments are final.
- If you have any questions about grades/points awarded to assignments, make an appointment to see the course instructor during the course instructor's office hours.

- Course instructor will not discuss grades/points during class time. Please make an appointment.
- All citations must be in the APA format.
- Do not upload draft copies of assignments onto the class web page (except where noted).
- All assignments are required to be uploaded onto the class web page and/or Foliotek.
- All deadlines are final.
- NO CELL PHONE USE/CELL PHONE TEXTING during the scheduled class session!

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).

Submitting Work: All assignments will be submitted via Canvas (<https://unt.instructure.com/>) or Foliotek. Assignments posted after the deadline will be considered late and points will be deducted from the final grade.

Grading and Grade Reporting: Grading rubrics for all assignments can be found on the course website (Canvas) with the assignment. Students are encouraged to review the grading rubrics to guide them in successfully completing all assignments.

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>.

Teacher Education & Administration ***Departmental Policy Statements***

UNT Career Connect: All undergraduate students are expected to participate in “UNT Career Connect.” Each student needs to set up a UNT e-portfolio for this purpose. As a UNT student engages in real-life, career-related experiences in curricular and/or co-curricular settings, s/he should upload documentation of these experiences into his/her UNT e-portfolio. Course instructors will help students identify appropriate experiences and accompanying documentation/artifacts for inclusion in the e-portfolio. Through their respective e-portfolios, students are able to make connections across their student experiences and reflect upon their learning and skills in order to prepare them with marketable skills for careers and graduate degrees. The e-portfolio also serves as a useful device for future job interviews. Career Connect places emphasis on important job skills such as communication, teamwork, and critical thinking. For students seeking teacher certification, these on-the-job skills will be evaluated during student teaching using the North Texas Appraisal of Classroom Teaching (NTACT) or its successor instrument. Follow this link to learn more and to set up your personal e-portfolio: <http://careerconnect.unt.edu/default>.

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.” Dr. Barbara Pazey is the compliance officer and contact person for the Department of Teacher Education & Administration.

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 Student Standards of Academic Integrity:

http://policy.unt.edu/sites/default/files/untpolicy/pdf/7-Student_Affairs-Academic_Integrity.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.

Acceptable Student Behavior: 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 Dean of Students 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. The Code of Student Conduct can be found at <https://deanofstudents.unt.edu/conduct>.

Attendance: See the instructor’s attendance policy.

Eagle Connect: All official correspondence between UNT and students is conducted via Eagle Connect and it is the student's responsibility to read their Eagle Connect Email regularly.

Cell Phones and Laptops: Students should turn off cell phones when they are in class unless the phones are being used for learning activities associated with the course. Similarly, laptops should be turned off, unless they are being used to take class notes and/or participate in class activities.

SPOT: The Student Perceptions of Teaching (SPOT) 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 SPOT 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.

Foliotek e-Portfolio. Foliotek is a free to you software data management system (MMS) 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

evidence/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://www.coe.unt.edu/office-educator-preparation/foliotek>.

Comprehensive Arts Program Policy. The Elementary Education program area supports a comprehensive arts program to assist preservice and inservice teachers to design and implement curricular and instructional activities which infuse all areas of the arts (visual, music, theater, and movement) throughout the elementary and middle school curriculum.

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.

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 information and registration, go to: <http://www.coe.unt.edu/texas-advising-office/texas-exams>. 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 until August 31, 2018. On September 1, 2018, all certification exams will be administered by Pearson. To create testing accounts, register, schedule, and access scores on or after September 1, 2018, visit this web site: <http://www.tx.nesinc.com/>

“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).

Six Student Success Messages. The Department of Teacher Education & Administration supports the six student success messages on how to succeed at UNT: (1) Show up; (2) Find support; (3) Get advised; (4) Be prepared; (5) Get involved; and (6) Stay focused. Students are encouraged to access the following website: <https://success.unt.edu>. The site contains multiple student resource links and short videos with student messages.

