University of North Texas at Dallas
Fall 2015
SYLLABUS for Distance Learning

EDCI 5150
Curriculum and Instructional Methodologies in Mathematics and Science K-8
3 Credit Hours

Department of	Teacher Education and Administration	**Division of**	Education and Human Services

Instructor Name:	**Dr. LaBotta Taylor**
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Office Hours:	**By appointment (Portion online)**

Classroom Location:	*Dal1 344 (Hybrid)*
Class Meeting Days & Times:	**Tuesdays, 5:30 -8:20 p.m. (Hybrid)**

Course Catalog Description:	Intended for individuals who already possess a bachelor's degree and who are seeking EC-6 or Grades 4-8 teaching certification. The course covers mathematics and science content and teaching methodologies.

Prerequisites:	Graduate student standing
Required Texts:	Froschauer, L. (2013). *A year of inquiry: A collection for elementary educators.* Arlington, VA: National Science Teachers Association (NSTA). Stein, M.K. & Smith, M.S. (2011). *5 practices for orchestrating productive mathematics discussion.* Thousand Oaks, CA: National Council of Teachers of Mathematics (NCTM).
Access to Learning Resources:	UNT Dallas Library: phone: (972) 780-3625; web: http://www.unt.edu/unt-dallas/library.htm UNT Dallas Bookstore: phone: (972) 780-3652; e-mail: 1012mgr@fheg.follett.com

Course Goals or Overview: The goals of this course are as follows -

The purpose of this course is to prepare students to teach mathematics and science subject matter in Grades K-8.

Learning Objectives/Outcomes: At the end of this course, students will be able to:

1

Interstate Teacher Assessment and Support Consortium (InTASC) Standards

Standard 4: Content Knowledge

Understand the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

Standard 5: Application of Content

Understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.

2	**Texas State Board for Educator Cert. Mathematics Generalist Standards** **Standard V. Mathematical Processes:** Understand and use mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically. **Standard VII. Mathematical Learning and Instruction:** Understand how children learn and develop mathematical skills, procedures, and concepts, know typical errors students make, and use 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:** Understand assessment and use 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:** Understands mathematics teaching as a profession, know the value and rewards of being a reflective practitioner, and realize the importance of making a lifelong commitment to professional growth and development.
3	**Texas State Board for Educator Cert. Science Generalist Standards** **Standard IV. Inquiry:** Understands the process of scientific inquiry and its role in science instruction. **Science Standard V: Assessment** Know the varied and appropriate assessments and assessment practices to monitor science learning. **Science standard VII:** Know and understand the science content appropriate to teach the TEKS in Physical Science. **Science standard IX:** Knows and understand the science content appropriate to teach the TEKS in Life Science. **Science standard X:** Know and understand the science content appropriate to teach the TEKS in Earth and Space Science.

Online/Hybrid Course Outline

This schedule is subject to change by the instructor. Any changes to this schedule will be communicated in class or via class email or Blackboard announcement. Additional readings and activities may be added, these will be noted in the Readings and Activities/Assignments sections.

TOPICS	TIMELINE
Introductions to Instructional Methodologies in Mathematics and Science, K-8. TEKS: (K-8) Mathematics INTASC: Standard 4 –Content Knowledge NCTM: Introducing the Five Practices, Introduction and Chapter 1	Week 1/ Face-to-Face
Science: What Does a Scientist Do? TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge NSTA: A Powerful Way to Learn, Chapter 1 Supporting Ideas with Evidence, Chapter 2 Sound Science, Chapter 3 Dig Deeply, Chapter 4	Week 2
Math: Setting Goals for Instruction, Selecting an Appropriate Task, Case Study TEKS: (K-8) Mathematics INTASC: Standard 5 –Mathematical Processes Standard 7-Mathematical Learning and Instruction NCTM: Laying the Groundwork: Setting Goals and Selecting Tasks, Chapter 2 Investigating the Five Practices in Action, Chapter 3	Week 3
Science: Process Skills TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge NSTA: Inquiry, Process Skills, and Thinking in Science, Chapter 5 Inference or Observations? Chapter 6 Nature's Palette, Chapter 7 Beyond Predictions, Chapter 8	Week 4
Student Presentations Math: Student Responses', Monitoring Work, Case Study TEKS: (K-8) Mathematics INTASC: Standard 5 –Mathematical Processes Standard 7-Mathematical Learning and Instruction Standard 8-Mathematical Assessment NCTM: Getting Started: Anticipating Students' Responses and Monitoring Their Work, Chapter 4 Determining the Direction of the Discussion: Selecting, Sequencing, and Connecting Students' Reponses, Chapter 5	Week 5/ Face-to-Face
Science: Science Notebooks TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: A Foolproof Tool, Chapter 9 A Menu of Options, Chapter 10 Interactive Reflective Logs, Chapter 11 Reuse that Notebook!, Chapter 12	Week 6
Midterms Math: Asking Good Questions, Reasoning, Wait Time TEKS: (K-8) Mathematics INTASC: Standard 5 –Mathematical Processes Standard 7-Mathematical Learning and Instruction Standard 8-Mathematical Assessment NCTM: Ensuring Active Thinking and Participation: Asking Good Questions and Holding Student	Week 7/ Face-to-Face

Accountable, Chapter 6	
Science: Investigable Questions TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: Sparks that Ignite Inquiry, Chapter 13 A Quest to Improve, Chapter 14 Personalized Inquiry, Chapter 15 Picture This!, Chapter 16	Week 8
Math: Lesson Planning TEKS: (K-8) Mathematics INTASC: Standard 5 –Mathematical Processes Standard 7-Mathematical Learning and Instruction Standard 8-Mathematical Assessment NCTM: Putting the Five Practices I a Broader Context of Lesson Planning, Chapter 7	Week 9
Science: Data Collection and Representation TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: Helping Young Learners Make Sense of Data: A 21st-Century Capability, Chapter 17 Early Primary Invasion Scientists, Chapter 18 Measure Lines, Chapter 19 No Duck Left Behind, Chapter 20	Week 10
Student Presentations Science: Selecting an Inquiry Experience TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: Pathways to Inquiry, Chapter 21 Inquiry into the Heart of a Comet, Chapter 22 Thinking Inside the Box, Chapter 23 Concept-Based Learning, Chapter 24	Week 11/ Face-to-Face
Math: Classroom Discussions TEKS: (K-8) Mathematics INTASC: Standard 9-Professional Development NCTM: Working in the School Environment to Improve Classroom Discussions, Chapter 8	Week 12
Science: Switching from Cookbook Labs to Full Inquiry TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: Inquiry is Essential, Chapter 25 Five Strategies to Support All Teachers, Chapter 26 Fire Up the Inquiry, Chapter 27 Water Pressure in Depth, Chapter 28	Week 13
Science: Sharing Research Results TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content	Week 14

NSTA: What a Copper-Plated Nail Taught Me about Sharing Research Results, Chapter 29 A Standards-Based Science Fair, Chapter 30 Living or NonLiving, Chapter 31 Claims, Evidence, and Reasoning, Chapter 32	
Science: Assessing Inquiry TEKS: (K-8) Science INTASC: Standard 4 –Content Knowledge Standard 5-Application of Content NSTA: The Changing Landscape of Assessment, Chapter 33 Feed Up, Feedback, and Feed Forward, Chapter 34 Capitalizing on Curiosity, Chapter 35 Whoooo Knew?, Chapter 36	Week 15
Final Exams	Week 16/ Face-to-Face

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course. All assignments should be posted on time. Late assignments will be deducted one letter grade for each day not turned in on time.

Discussion Posts-Discussions should be posted no later than Sunday @ 11:59 p.m. You should collaborate with 2 classmates no later than Wednesday @ 11:59 p.m. of the same week as the original post.

Quizzes-Quizzes will be given over assigned readings/articles.

Exams-The Final Exam will be an in-class, comprehensive examination. Attendance is mandatory.

Grading Matrix:

Activities/Assignments	Value (points)
Mathematical/Science Project	100
Article Quizzes	100
Midterms	100
Math Research Paper and Presentation	100
Science Research Paper and Presentation	100
Attendance and Online Discussion Participation (20 points Weeks 1-15)	300
Final Exam (comprehensive)	200
Total:	**1,000**

Grade Determination
A = 900 or better
B = 800 – 899 points
C = 700 – 799 points
D = 600 – 699 points
F = less than 600 points

University Policies and Procedures

Students with Disabilities (ADA Compliance):

Chapter 7(7.004) Disability Accommodations for Students

The University of North Texas at Dallas makes reasonable academic accommodation for students with disabilities. Students seeking accommodations must first register with the Disability Services Office (DSO) to verify their eligibility. If a disability is verified, the DSO will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, DSO 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/communicate with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the Disability Services Office website at http://www.untdallas.edu/disability. You may also contact them by phone at 972-338-1777; by email at UNTDdisability@untdallas.edu or at Building 2, room 204.

Blackboard Learn Accessibility Statement:
University of North Texas at Dallas is committed to ensuring its online and hybrid courses are usable by all students and faculty including those with disabilities. If you encounter any difficulties with technologies, please contact our ITSS Department. To better assist them, you would want to have the operating system, web browser and information on any assistive technology being used. Blackboard Learn course management system's accessibility statement is also provided: http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx

NOTE: Additional instructional technology tools, such as Turnitin, Respondus, Panopto, and publisher cartridge content (i.e. MyLab, Pearson, etc.) may NOT be fully ADA compliant. Please contact our Disability Office should you require additional assistance utilizing any of these tools.

Student Evaluation of Teaching Effectiveness Policy:
Student's evaluations of teaching effectiveness is a requirement for all organized classes at UNT Dallas. This short 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 students' evaluations to be an important part of your participation in this class.

Assignment Policy: (According to the instructor's discretion while working in concert with the division/program's guidelines).

Exam Policy: (Online exams and the ability to retake is solely at the instructor's discretion). NOTE: Online exams may be proctored on campus per instructor's discretion.

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of Academic Integrity policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Academic Integrity at http://www.untdallas.edu/sites/default/files/page_level2/pdf/policy/7.002%20Code%20of%20Academic_Integrity.pdf for complete provisions of this code.

Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabrication of information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of

another person or work previously used without informing the instructor, or tampering with the academic work of other students.

Web-based Plagiarism Detection*:* Please be aware in some online or hybrid courses, students may be required to submit written assignments to Turnitin, a web-based plagiarism detection service, or another method. If submitting to Turnitin, please remove your title page and other personal information.

Classroom Policies

Online Attendance and Participation:

The University attendance policy is in effect for this course. Class attendance in the Blackboard classroom and participation is expected because the class is designed as a shared learning experience, and because essential information not in the textbook will be discussed in the discussion board. Online presence and participation in all class discussions is essential to the integration of course material and your ability to demonstrate proficiency. .

Attendance for this online or hybrid course is considered when you are logged in and active in Blackboard, i.e., posting assignments, taking quizzes, or completing Discussion Boards. To maintain financial aid award eligibility, activity must occur before the census date of the session or term of the course. Refer to http://www.untdallas.edu/registrar for specific dates. If you are absent/not active in the course shell, it is YOUR responsibility to let the instructor know immediately, upon your return, the reason for your absence if it is to be excused. All instructors must follow university policy 7.005 covering excused absences; however, it is the instructor's discretion, as outlined in the course syllabus, of how unexcused absences may or may not count against successful completion of the course

Inclement Weather and Online Classes: Online classes may or may not be effected by campus closures due to inclement weather. Unless otherwise notified by your instructor via e-mail, online messaging, or online announcement, students should assume that assignments are due as scheduled.

Online "Netiquette:
In any social interaction, certain rules of etiquette are expected and contribute to more enjoyable and productive communication. Emails, Discussion Board messages and/or any other forms of written communication in the online environment should use proper "netiquette" (i.e., no writing in all caps (usually denotes yelling), no curse words, and no "flaming" messages (angry, personal attacks).

Racial, ethnic, or gender slurs will not be tolerated, nor will pornography of any kind.

Any violation of online netiquette may result in a loss of points or removal from the course and referral to the Dean of Students, including warnings and other sanctions in accordance with the University's policies and procedures. Refer to the Student Code of Student Rights Responsibilities and Conduct at http://www.untdallas.edu/osa/policies. Respect is a given principle in all online communication. Therefore, please be sure to proofread all of your written communication prior to submission.

Diversity/Tolerance Policy:
Students are encouraged to contribute their perspectives and insights to class discussions in the online environment. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Dean of Students as the instructor deems appropriate.

Technology Requirements: In order to successfully access the materials in an online or hybrid course, UNT Dallas advises that your computer be equipped with the minimum system requirements.

Blackboard Learn 9.1 is the platform software for this course. Blackboard Learn supports major web browsers such as Windows Internet Explorer, Apple Safari, Mozilla Firefox, and Google Chrome. However, since the latter two are updated continually, some recent versions may not be compatible. If you experience difficulty accessing or using

components of the course, try using Internet Explorer. Also, no matter what browser you use, always enable pop-ups. For more information see:

- http://www.untdallas.edu/dlit/ecampus/requirements
- https://help.blackboard.com/en-us/Learn/9.1_SP_12_and_SP_13/Student/040_Browser_Support_for_SP_13
- https://learn.unt.edu/bbcswebdav/institution/BrowserCheck/check_full.html