

**University of North Texas at Dallas**  
**Fall 2016**

EDCI 5150 Curriculum and Instructional Methodologies in Mathematics and Science K-8 3 Credit Hours	
<b>School of Education</b>	
<b>Instructor Name:</b>	<b>Dr. Ratna Narayan</b>
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<b>Office Hours:</b>	<b>By appointment</b>
<b>Classroom Location:</b>	<i>Dal 1 248 / Hybrid</i>
<b>Class Meeting Days &amp; Times:</b>	<b>Tuesday, 5:30 – 8:20 pm/hybrid</b>
<b>Course Catalog Description:</b>	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
<b>Prerequisites:</b>	<b>Graduate student standing</b>
<b>Required Text:</b>	Froschauer, L. (2013). A year of inquiry: A collection for elementary educators. Arlington, VA: National Science Teachers Association (NSTA). Please order this through Amazon or download the pdf version through NSTA (\$16.87 for NSTA members/\$19.46 non-members).  Stein, M.K. & Smith, M.S. (2011). 5 practices for orchestrating productive mathematics discussion. Thousand Oaks, CA: National Council of Teachers of Mathematics (NCTM).
<b>Access to Learning Resources:</b>	UNT Dallas Library: phone: (972) 780-1616 web: <a href="http://www.untDallas.edu/library">http://www.untDallas.edu/library</a> email: <a href="mailto:library@untDallas.edu">library@untDallas.edu</a>  UNT Dallas Bookstore: phone: (972) 780-3652 web: <a href="http://www.untDallas.edu/bookstore">http://www.untDallas.edu/bookstore</a> e-mail: <a href="mailto:untDallas@bkstr.com">untDallas@bkstr.com</a>
<b>Course Goals or Overview:</b> 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.
<b>Learning Objectives/Outcomes:</b> 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	<p>Texas State Board for Educator Cert. Mathematics Generalist Standards</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
3	<p>Texas State Board for Educator Cert. Science Generalist Standards</p> <p>Standard IV. Inquiry: Understands the process of scientific inquiry and its role in science instruction.</p> <p>Science Standard V: Assessment Know the varied and appropriate assessments and assessment practices to monitor science learning.</p> <p>Science standard VII: Know and understand the science content appropriate to teach the TEKS in Physical Science.</p> <p>Science standard IX: Knows and understand the science content appropriate to teach the TEKS in Life Science.</p> <p>Science standard X: Know and understand the science content appropriate to teach the TEKS in Earth and Space Science</p>

### 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. All assignments will be submitted via Blackboard. Please explore the BB Discussion section for details about each assignment.

Schedule	Modality	Activities	Due Date
Week 1 August 23rd	Online	<p>Complete Online introductions on Blackboard.</p> <p>Go to the Discussion section and answer the prompts</p> <p>Preparation for math / science activity presentation 25 points. Please refer to the</p>	<p>August 23rd</p> <p>Aug 30th</p>

		discussion thread on BB for further details about this assignment	
Week 2 August 30th	Math / science activity presentation/chapters discussion	<p>Read: and come to class prepared for class discussion</p> <p>SCIENCE TEXTBOOK - Read the following chapters by Tuesday, August 30th TOPIC: Science Process Skills Inquiry, Process Skills, and Thinking in Science, Chapter 5 Inference or Observations? Chapter 6 Nature's Palette, Chapter 7 Beyond Predictions, Chapter 8</p> <p>The following will present their activity on Aug 30th Anderson Erin Elizabeth Beebe Maria Banda Brown Ashley Campbell Stefanie Fenell Alyssa Lauren</p>	
Week 3 Sept 6th	Math / science activity presentation/ chapters discussion	<p>Chapter discussions in class. Read and come ready:</p> <p>MATH TEXTBOOK-Read the following chapters by Tuesday Sept 6<sup>th</sup> and come to class prepared for class discussion.</p> <p>Laying the Groundwork: Setting Goals and Selecting Tasks, Chapter 2 Investigating the Five Practices in Action, Chapter 3</p> <p>The following will present their activity on Sept 6<sup>th</sup> Chad Martin Everett Lori Michelle Proctor Smith Jacqueline Slaton Thomson Yanez Juan Navor</p>	

		And anyone else who is added to the course.	
Week 4 Sept 13th	online	<p><b>Read:</b>  <b>MATH TEXTBOOK: Read the following chapters for Tuesday, September 13<sup>th</sup> (online discussion)</b></p> <p>Getting Started: Anticipating Students' Responses and Monitoring Their Work, Chapter 4</p> <p>Determining the Direction of the Discussion: Selecting, Sequencing, and Connecting Students' Responses, Chapter 5</p>	Online discussion for chapter readings Prompts uploaded on BB Responses due sept 16th
Week 5 Sept 20th	Face to face	<p><b>Read and come prepared for class discussion:</b></p> <p><b>MATH TEXTBOOK: Read the following chapters for Sept 20<sup>th</sup></b>  Chapter 6 - Ensuring Active Thinking and Participation: Asking Good Questions and Holding Students Accountable</p> <p>Math and Science activity  TIMMS</p>	Content test results and reflection due on BB
Week 6 Sept 27th	Face to face	<p><b>Read and come prepared for class discussion:</b></p> <p><b>SCIENCE TEXTBOOK: Read the following chapters by Tuesday, Sept 27th.</b></p> <p>Sparks that Ignite Inquiry, Chapter 13  A Quest to Improve, Chapter 14  Personalized Inquiry, Chapter 15  Picture This!, Chapter 16</p>	

Week 8 Oct 4th	online	The State Fair of Texas is from Sept 30 – Oct 23 <sup>rd</sup> . Visit the state fair and complete the related assignment	
Week 9 Oct 11th	Face to face Teaching math and science with technology Check out ipads	Read and come prepared for class discussion: MATH TEXTBOOK: Read the following chapter for Oct 11 <sup>th</sup>  Chapter 7-Putting the Five Practices in a Broader Context of Lesson Planning  Math/science apps	Math / science app assignment, Oct 11 <sup>th</sup> see BB for details
Week 10 Oct 18th	Face to face	Read and come prepared for class discussion: SCIENCE TEXTBOOK: Read the following chapters for Oct 18 <sup>th</sup>  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  Inquiry in the math / science classroom	
Week 11 Oct 25th	online	The Paul Quinn Farm assignment  Please note: this assignment will change once I get more information from Paul Quinn.	Oct 23 <sup>rd</sup> State Fair of Texas Math/Science assignment due

		I will provide you an update as soon as I get one	
Week 12 Nov 1st	Face to face	<p>Read and come prepared for class discussion:</p> <p><b>SCIENCE TEXTBOOK:</b>  Read the following chapters by Tuesday, Nov 1<sup>st</sup></p> <ul style="list-style-type: none"> <li>Chapter 9: A Foolproof Tool</li> <li>Chapter 10-A Menu of Options</li> <li>Chapter 11-Interactive Reflective Logs</li> <li>Chapter 12-Reuse the Notebook!</li> </ul> <p>Math Lesson Presentations</p>	<b>Paul Quinn assignment due on BB Nov 1st</b>
Week 13 Nov 8th	Face to face	<p>Read and come prepared for class discussion:</p> <p><b>MATH TEXTBOOK:</b> Read the following chapters by Tuesday, November 8<sup>th</sup></p> <p>Chapter 8-Working in the school environment to improve classroom discussion</p> <p>Math Lesson Presentations</p>	
Week 14 Nov 15th	<b>online</b>	<p>Visit a museum or community place, which focuses on educational activities/programs for students. There are some free, as well as inexpensive places, to go within the Dallas-Fort Worth Metroplex. DUE Nov 22<sup>nd</sup> on BB</p>	
Week 15 Nov 22nd	Face to Face	Science lesson presentations	Museum / community place assignment due on BB

Week 16 Nov 29th	Face to face	Science Lesson presentations Last day of classes Pot luck	
Week 17 Dec 6th	All assignments due by 5pm		

## Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

### Grading Matrix:

Assignments	Points
Discussions in class and online	100
Intro science math concept presentation	25
Content test and reflection	25
Science and math app assignment	25
State Fair assignment	50
Paul Quinn assignment	50
Math presentation	100
Museum / community assignment	25
Science presentation	100
<b>Total</b>	<b>500</b>

### Grade Distribution:

500 – 450 = A

449 – 400 = B

399 – 350 = C

349 – 300 = D

Below 299 = F

**Please note: All the assignments are compulsory. All assignments will be submitted to a thread in Blackboard unless mentioned otherwise. I expect you to complete all the assignments in a timely fashion. There will be no substitutions unless I approve of them. Professional development opportunities will be offered; if you are unable to avail of these an alternate assignment will be provided.**

### Class Participation – Expectations

1. ATTENDANCE - Attend all classes, meetings, etc. arriving on time.
2. PREPARATION - Be prepared to discuss assigned readings and submit assignments according to established deadlines.
3. PARTICIPATION - Contribute constructively and respectfully to all discussions and activities.
4. RESPECT – Do not talk while the teacher or another presenter is speaking.
5. ACADEMIC HONESTY - Know and follow course, departmental, program and university policies on assignments and assessments.
6. PROFESSIONALISM - Know and follow departmental, program and university policies expected

of PDS students.

7. Participation and Professionalism – CRITICAL!
  - a. Absences and tardies will count toward final grade reduction: 2 absences = one final grade reduction, 4 absences = two final grade reductions, 5 absences = three grade reduction, please make arrangements to retake the class another semester
  - b. Three tardies = 1 absence. (Tardy - must arrive within the first 10 minutes of class)
  - c. Completes assigned readings before coming to class
  - d. Answers questions and participates in class discussions
  - e. Avoid social or unrelated conversation, working on other assignments, using cell phone, checking email, surfing web, playing video games during class time etc.
8. **You are expected to be present in class and on time especially on presentation dates. If you arrive late you will lose 50% of the assigned points.**

## University Policies and Procedures

### Students with Disabilities (ADA Compliance):

The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA).

“Any student requesting academic accommodations based on a disability are required to register with Disability Services each semester. A letter of verification for approved accommodations can be obtained from this office. Please be sure the letter is delivered to me as early in the semester as possible. Disability Services is located in DAL 2, Room 204 and is open 8:30-5:00p.m., Monday through Friday. The phone number is (972) 338-1777.”

Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. For more information, you may visit the Office of Disability Accommodation/Student Development Office, Suite 115.

### Course Evaluation Policy:

Student's evaluation 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:

All assignments are compulsory. There are no exceptions to this rule. Please refer to the assignment expectations document for details about each assignment and its due dates. If an assignment is submitted after the due date and within 24 hours you could get 50% of the grade. Anything submitted after 24 hours of the due date , you get zero points!

If I am not satisfied with an assignment response, I reserve the right to deduct points and return it to you so you may improve on it and resubmit to get some of the deducted points back if the work is deemed satisfactory. All assignments are due by 5pm Dec 6<sup>th</sup> 2016 after which NO assignments will be accepted or graded.

### Exam Policy:



Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook).

### **Academic Integrity:**

Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of conduct and Academic Dishonesty 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 Conduct at [http://www.unt.edu/csrr/student\\_conduct/index.html](http://www.unt.edu/csrr/student_conduct/index.html) for complete provisions of this code.

Please take the time to go through this link. If I find you have plagiarized from any source without giving them due credit I will give you a zero for that assignment.

### **Bad Weather Policy:**

On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website [www.unt.edu/dallas](http://www.unt.edu/dallas). Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

### **Attendance and Participation Policy:**

The University attendance policy is in effect for this course. Class attendance 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 class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency.

**Students are responsible to notify the instructor if they are missing class and for what reason. If I have not heard from you and receive supporting documentation for your absence, I shall consider it an unexplained absence. Two such absences will reduce your overall grade by a letter grade irrespective of the points you might make. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent. If you have missed a class, please make an appointment to meet me so we can determine what needs to be done to make up the lost time. If you are absent on a presentation day you will get zero points for that assignment.**

### **Diversity/Tolerance Policy:**

Students are encouraged to contribute their perspectives and insights to class discussions. 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 Center for Student Rights and Responsibilities as the instructor deems appropriate.

### **Optional Policies:**

#### ***Use of WebCT/Blackboard***

I will expect you to use Blackboard to upload your assignments and I will give you feedback on those on Blackboard. Please monitor these for additional comments I give or information I require.

### ***Use of Cell Phones & other Electronic Gadgets in the Classroom***

Please do not use your cell phones in class. If it is an emergency, I will permit you to leave class and take the call. **If I see you texting or playing videogames or checking your email in class I will drop you a letter grade.**

### **Food & Drink in the Classroom**

I do not mind food and drink in the classroom, however when we are conducting an activity, I will expect all food and drink to be put away immediately. All food and drinks must be properly disposed of.

### **Use of Laptops**

If I need you to use a laptop during class I will take you to the computer lab.

### **Grade of Incomplete, "I"**

A grade of incomplete, "I" will be given only under extenuating circumstances.