



**EDCI 529: Math Instruction for the 21st Century-Instruction
FALL 2015
TAMU-Commerce**

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***preferred method of communication**

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings:

Textbook(s) Required: (2 texts)

[Principles to Actions: Ensuring Mathematics Success for All](#)

***Choose the one for your teaching level:**

[Mathematics for Every Student, Responding to Diversity, Grades PreK-5](#)

[Mathematics for Every Student Responding to Diversity, Grades 6-8](#)

[Mathematics for Every Student, Responding to Diversity, Grades 9-12](#)

(At NCTM: Except for Prek-5, you can view the table of contents, so HS/Middle school teachers; this may help you decide which better suits your needs.)

Suggested:

[Making Thinking Visible: How to Promote Engagement, Understanding, and Independence for All Learners](#) by Ron Ritchhart (2011)

[Teaching Mathematics through Problem Solving: Prekindergarten–Grade 6](#) (> \$9)

Articles to Read: (Several more within ecollege: these are for first week.)

Cuoco, A., Paul Goldenberg, E., & Mark, J. (1996). Habits of mind: An organizing principle for mathematics curricula. *The Journal of Mathematical Behavior*, 15(4), 375-402.

Charles, R. I., & Carmel, C. A. (2005). Big ideas and understandings as the foundation for elementary and middle school mathematics. *Journal of Mathematics Education*, 7(3).

(USE GOOGLE SCHOLAR- easy and free.)

Course Description:

Math Instruction for the 21st Century-Instruction for success with the Texas Essential Knowledge and Skills for Math; NCTM's principles for mathematics education; ways children develop mathematical understanding, problem solving skills, and processes used to get there; analyzing student's error patterns; resources for teaching mathematics.

This course takes a closer look at how children learn mathematics, and how we can foster a mindset for doing mathematics.

Student Learning Outcomes:

1. Develop the skills and knowledge necessary to support children's understanding of mathematics in ways that promote mathematical understanding, application in meaningful and engaging ways.
2. Develop the ability to design and/or select mathematical activities that promote problem-solving and mathematical thinking/reasoning.
3. Develop an understanding of how to assess students' understanding and adapt their teaching or lesson design to enhance learning and improve instruction.
4. Develop strategies for true differentiation and understand its role in helping ALL students.
5. Understand how to integrate mathematics with other subjects for better connections and meaningful teaching.
6. Develop a more positive disposition for doing and teaching mathematics.

COURSE REQUIREMENTS

Course Requirements:

1. **Readings:** There will be assigned readings from both texts and articles. Most responses will be in the form of reflecting with a short summary. There will also be charts and discussion that will be rooted in the readings.
2. **Reflection:** Students will reflect on how to apply what they have learned to their own teaching and how they would like to improve their teaching based on this new knowledge or reflection. (This is the second assignment in most weeks.)
3. **Mathematic Problem of the Week:** An inquiry type problem will be posed every other week (total of 8 for the semester) to focus on the exploration of mathematical problem solving approaches. No formulas (formal algorithms) may be used. Two different methods to a solution are required to help you think of the problem in different ways to help you think of how to approach these types of problems from an instructional viewpoint. You will also have to state what "Big Ideas" are being covered or developed through this problem.
4. **Case Study:** Understanding how children think is critical to assessing their errors and misconceptions. This information can help us adapt instruction to help students self-correct. You will need to interview a student, assess their strengths and weaknesses in solving problems with common misconceptions and provide strategies to improve or correct their thinking. (More specifics in Ecollege.)
5. **Lesson Plan that integrates mathematics lesson with literature:** You will design a lesson using a child's storybook to create problem solving for a specific content area (using the TEKS) for the grade level you are teaching. (More specific instructions in Ecollege.)
6. **Mathematic Lesson Plan that responds to Diversity:** You will choose an area that fits your needs (ELL, ESL, life style preferences, economics status, cultural differences) and create a plan integrating content (based on the TEKS) and strategies to respond to the diversity you have in your classroom with affirmation. (More specific instructions in Ecollege.)
7. **Final Exam:** Questions will come from the readings. Differentiation will occur by teaching level (k-5, and secondary).

TECHNOLOGY REQUIREMENTS

The following technology is required to be successful in this course:

- High speed internet connection (Not dial-up)
- Microsoft Office Word 2003, 2007, or 2010
- Access to myeducationlab.com
- Access to ecollege
- Access to the university library site (online)
- Access to university email

A computer lab is located in the Bain Center and is available to students Monday-Friday between the hours of 8 am and 5 pm. The lab provides computers, internet access, and printers for student use.

ACCESS AND NAVIGATION

This course will be facilitated using eCollege, the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: <https://leo.tamu-commerce.edu/login.aspx>. You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamu-commerce.edu.

Texas A&M University Commerce offers an online library. To access available materials and databases, go to <http://web.tamu-commerce.edu> and click on "Current Students" at the top of the page. Then, click on the "Library" in the middle of the page.

Texas A&M University also offers an online Writing Center that may be beneficial to you when completing writing assignments. The web address is <http://web.tamu-commerce.edu/academics/colleges/artsSciences/departments/literatureLanguages/writingCenter/default.aspx>.

COMMUNICATION AND SUPPORT

Good communication is vital in this course. Students may contact me by phone, email, or in person. I will make every effort to check and respond to emails during the week. Weekend contacts may not be returned until the following Monday. Please note that you **MUST** use your university issued email account when contacting me for any issue related to this class. If you must text me, please say **EDCI 529** and your name.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

Attendance: Students are required to attend each session of course. The sessions will be controlled by dates so attend before the session closes. You are responsible for obtaining class materials /assignments/notes from one of your peers. Due dates are firm and late assignments will not be accepted without my prior approval or a documented excuse. **Approved late assignments may be subject to a 10 point grade deduction turned in within a week.**

Written Assignments: All written assignments are to be typed double-spaced in Times New Roman 12 pt. font with 1" margins and are expected to exhibit professional quality. You should demonstrate mastery

of organizing, structuring, and editing (for all aspects of mechanics) in your writing. Excessive grammar, spelling, and vocabulary errors will result in a reduction of your score at the instructor's discretion.

University Specific Procedures:

Academic Honesty Policy

Texas A&M University-Commerce does not tolerate **plagiarism** and other forms of academic **dishonesty**. Conduct that violates generally accepted standards of academic honesty is defined as academic dishonesty. "Academic dishonesty" includes, but is not limited to, plagiarism (the appropriation or stealing of the ideas or words of another and passing them off as one's own), cheating on exams or other course assignments, collusion (the unauthorized collaboration with others in preparing course assignments), and abuse (destruction, defacing, or removal) of resource material. More information about plagiarism may be found on the following sites:

<http://www.plagiarism.org>

<http://www.unc.edu/depts/wcweb/handouts/plagiarism.html>

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. 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 have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services
Texas A&M University-Commerce**

Gee Library 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

StudentDisabilityServices@tamu-commerce.edu

[Student Disability Resources & Services](#)

Student Conduct

You are expected to demonstrate a professional attitude at all times. An educator demonstrates his/her professionalism in ways such as being on time, attending all classes, participating in and contributing to class activities, accepting responsibility, completing assignments on time and in a quality fashion, and being on your consistent demonstration of professionalism during class and on your assignments, etc. **The Professional Behavioral Standards Evaluation Form (points deducted from final grade)** will be utilized at such time as it is warranted due to non-compliance with these expectations). **"All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment."** (See **Student's Guide Handbook, Policies and Procedures, Conduct**)

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

COURSE OUTLINE / CALENDAR

<u>Week 1: Jan. 20-25</u>	<u>Week 8: March 9-15</u>
Assignment	Discussion
Discussion	problem of the week
	Assignment *Lesson Plan w/ Integration
<u>Week 2: Jan. 26- Feb. 1</u>	<u>Week 9: March 23-29</u>
Discussion	Assignment
Assignment	Discussion
lecture/video	Assignment 2: Reflection
problem of the week	
<u>Week 3: Feb. 2-8</u>	<u>Week 10: March 30 - April 5</u>
Assignment	Assignment
Assignment 2: Reflection	problem of the week
	*Case Study Assignment 2: Reflection
<u>Week 4: Feb. 9-15</u>	<u>Week 11: April 6-12</u>
Assignment	Assignment
Discussion	Discussion
problem of the week	*Lesson Plan for Diversity Assignment 2: Reflection
survey for extra credit	
<u>Week 5: Feb. 16-22</u>	<u>Week 12: April 13-19</u>
Assignment	Assignment
Assignment 2: Reflection	Assignment 2: Reflection
lecture/video	
<u>Week 6: Feb. 23- Mar. 1</u>	<u>Week 13: April 20-26</u>
Discussion	Assignment
Assignment	Quiz
lecture/video	Assignment 2: Reflection
problem of the week	
<u>Week 7: March 2- 8</u>	<u>Week 14: Apr. 27-May 3</u>
Assignment	survey for extra credit
Assignment 2: Reflection	Assignment
	<u>Week 15: May 4-8 FINAL Exam</u>
	Exam

Disclaimer:

The instructor reserves the right to make changes to the schedule of the class. Any alterations will be announced in class or via email by the instructor. Students who do not attend class or check their email assume responsibility for missing alterations to the course.