I. Course Description

The course addresses issues relevant to mathematics and/or science education. It may be repeated when topics vary.

II. Rationale

Persons pursuing a graduate degree in education will benefit from learning how incorporating research-based instructional practices into their classroom will help their students become active, engaged learners and increase student achievement.

This course is designed for graduate students who want to enhance and expand their understanding of current issues in math and science education. The course is offered in conjunction with the 11th annual ME by the SEa Conference.

III. State Adopted Proficiencies for Teachers

Learner-Centered Knowledge: The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students.

Learner-Centered Instruction: To create a learner-centered community, the teacher collaboratively identifies needs; and plans, implements and assesses instruction using technology and other resources.

Equity in Excellence for all Learners: The teacher responds appropriately to diverse groups of learners.

Learner-Centered Communication: While acting as an advocate for all students and the school, the teacher demonstrates effective professional and interpersonal communication skills.

Learner-Centered Professional Development: The teacher, as a reflective practitioner dedicated to all students’ success, demonstrates a commitment to learn, to improve the profession, and to maintain professional ethics and personal integrity.
IV. TExES Competencies

This course is designed for teachers who are already certified. TExES competencies, although expanded upon within this course, are not identified since the participating teachers will have already completed their examinations.

V. Course Objectives and Outcomes

This course will be organized around trend and issues in math and science education, as well as, research-based instructional approaches and strategies for increasing student achievement, specifically in math or science.

- The student will attend ME by the SEa, present and evaluate four sessions.
- The student will read peer-reviewed, scholarly articles on current trends and issues in math/science education.
- The student will write a paper on an important current trend in math/science education and effective student learning using correct APA citations.
- The student will participate in online class discussions concerning current math/science trends.
- The student will develop and present a lesson plan that would be effective for their math or science concept.
- The student will write a reflection paper based on their in-class lesson implementation and feedback from peers.

VI. Course Topics

Course topics include, but are not limited to:
- Current topics in Mathematics/Science education
- Program Planning for Teacher Professional Development
- TAMUCC Library’s databases for Literature Review
- How to write a Literature Review
- Research-based Instructional Strategies for Mathematics/Science
- Instructional Planning & Design for Effective Teaching/Learning
- How Students Learn

VII. Instructional Methods and Activities

Traditional experiences (reading assignments, journal article reviews, written assignments, on line discussion)
- BlackBoard assignments and interaction, conference attendance

VIII. Evaluation and Grade Assignment

The methods of evaluation and the criteria for grade assignment are:
- A. Methods and Percentage of Final Course Grade Each Assessment

2. Attendance and participation in Class Activities: There will be two face-to-face class meetings. All other class interactions will take place via Bb discussions.

3. Conference reaction papers (20%): Students must complete four written reaction papers reflecting their engagement with and evaluation of one keynote address and three regular conference sessions. Details will also be available on Bb.

4. **Mini Literature Review** (40%)
   Current Trends in Math/Science Education: (4 references; 1 grade for total assignment)
   1. The topic will be an important current trend in math/science education and effective student learning.
   2. Paper should be a minimum of 5 pages, but no more than 10 pages. Use a minimum of 4 peer-reviewed articles from professional educational journals, written within the past five years. The research must be related to effective instruction and student learning for all types of learners.
   3. EDCI 6390 Students - Paper should be a minimum of 8 pages, but no more than 10 pages. Doctoral students must utilize a minimum of 7 peer-reviewed articles from professional educational journals, written within the past five years.
   4. The research must be related to effective instruction and student learning for all types of diverse learners.
   5. The paper must include the following: Title Page, Abstract, Keywords, Introduction, Review of the Literature, Results and Discussion, and References.
   7. If using a Bell Library database rather than the hard copy of a journal, use articles with PDF files only, unless the article is from an Internet-only journal. Remember the article must be peer reviewed.
   8. Remember to use the doi number, if available. Due: June 28, 2015

Use a minimum of 4 peer-reviewed articles from professional educational journals, written within the past five years. Doctoral students must utilize a minimum of seven (7) peer-reviewed articles. The topic should be an important current trend in math/science education and effective student learning. If using a Bell Library database rather than the hard copy of a journal, use articles with PDF files only, unless the article is from an Internet-only journal. Remember the article must be peer reviewed. Use APA 6th Edition format, including Times New Roman, 12 pt. font. Be sure to check your APA book each
time you write. **Also, be sure to check sample papers on pp. 41-59.** I have given you some helpful page numbers in the following guidelines.

  - Running Head
  - Title
  - Author’s Name (Byline) and Institutional Affiliation
  - Author note: Person to contact


- **Keywords** (APA, 2010, p. 41).

  - Write the title of your paper. (APA, 2010, p. 42)
  - Do not title this section as Introduction; it is assumed.
  - Starting with the first paragraph, introduce the topic that you will be studying (important current trend in math/science education and effective student learning).
  - Explore the background and importance of the topic. Tell why this investigation is important to effective teaching and student learning.
  - Use your references here and cite appropriately according to APA, 6th edition formal/style.

- **Review of Literature** (APA, 2010, p. 10)
  - This is a literature review, which means that the references will be recent (within past 5 years) scholarly works such as professional peer reviewed journals.
  - Use the literature review to develop the topic for the reader.
    - Describe relevant scholarship. While you are encouraged to use more references, it is expected that you use a minimum of four citations in this section. Three must be from peer reviewed journals within the past five years, but you may cite your text for your fourth reference, if necessary.
    - Present the background on what you are looking into in this project. Contextualize the topic. Describe who else has looked at this topic. Help the reader understand the connection between past and present.
    - Discuss effective implementations of important current trend in math/science education and effective student learning within your content and/or grade level.
  - Use your references here and cite appropriately.

  - Describe/summarize what you learned.
  - Significance: What is the significance of the information you learned?
    - Implications: What implications will this research have for student learning, effective teaching practices, and the profession at large?
    - Applications: Describe “how the findings can be applied in practice”
  - Limitations: What were the limitations of your literature review?
  - Conclusion: Summarize what you learned from this research. You will need to “close the circle” by citing some of your previous sources in this section.
• **References** (APA, 2010, p. 37).
  - You will have a minimum of 4 references.
  - Follow APA style/format.

**Discussion Board (20%)**

You will be a part of the learning community by responding to a question on the discussion board. The promptness and initiative of participating in threaded discussions done in a timely fashion will demonstrate self-motivation. The delivery of your posts will address your attention to detail in terms of being grammatically correct with rare misspellings. You will make posts that are relevant to the original discussion by staying on topic. By contributing to the Learning Community (LC), you will demonstrate an effort to further the development of a collaborative learning experience. You will write a one-paragraph reflection that addresses a given prompt. Then you will review two other students' postings and post one response/comment to each student's post (Total of two replies). You can feel free to provide/post responses to more than two classmates' postings to enhance a discussion; however, you will only receive credit for replying to two classmates' posts. *Doctoral students will be required to complete two additional article responses. Remember to be courteous and respectful to all peers and in your responses to postings. Professionalism is expected at ALL times.*

**Instructional Strategies Self-Study (20%)**

Students will select a specific grade and subject (math or science) for study. Students will analyze their current classroom practices as they relate to the research-based instructional approaches discussed in the course. They will develop a plan that would implement changes that would be appropriate, responsible, and effective for their math or science concept. Requirements must be completed by the end of Summer Session I. Students will share their final reports + teach their newly developed lesson in person at a meeting on campus the week of June 29, 2015.

Grading: EDCI 5390

- Discussion board 20
- Conference reaction reports 20
- Instructional Strategies Self-Study 20
- Mini Literature Review 40
- TOTAL 100

**B. Grading Scale**

Grades:
- A = 92% - 100%
- B = 84% - 91%
- C = 76% - 83%
- D = 68% - 75%
IX. Course Schedule and Policies

A. A tentative course schedule:
   - Tuesday, June 19, 5:00pm – 6:30pm, ECMS, Welcome/Intro. to Course
     (1st face-to-face class meeting)
   - Friday, June 19, ME by the SEa, 8:00am – 4:00pm, Center for Instruction
     Discussion Board, June 8 -June 27
   - Sunday, June 28, Final Mini-Lit Review Due (before midnight)
   - Tuesday, June 30, 9:00am – 4:00pm, ECMS, Present Instructional Strategies Self
     Study (Course Symposium; 2nd face-to-face class meeting)

B. Class Policies

   Late assignments
   Late assignments will not receive full credit. A deduction of 10% per day will be
   applied to any late assignment. Communicating an excuse for a late assignment
   does not constitute a waiver of the deadline or avoid the deduction.

   Attendance/tardiness
   Attendance will be recorded for this class. Points will be deducted for class
   absences. Notification of an absence does not constitute a class waiver.

   Late work and Make-up Exams
   Full credit will not be given for late assignments or unexcused missed conference.
   Because this is a conference-related course, there can be no extensions for the
   final presentation or the final written report.

   Extra Credit
   Extra credit is not an option for this course.

X. Textbook(s) Recommended

Association.

XI. Bibliography

The knowledge bases that support course content and procedures include:

works: Research-based strategies for increasing student achievement. (2nd edition).
Alexandria, VA: ASCD.


Journals:

Selected readings from the professional journals *Mathematics Teaching in the Middle School* and *Teaching Children Mathematics* will be incorporated into the course content.

Additional Policies
Cell Phone/Electronic Device Usage
Cell phones and other electronic devices should not be used during class. If a potential emergency exists where a student is expecting an important call concerning a child or family member, the phone should be put on vibrate.

Academic Integrity/Plagiarism.
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a level of discipline appropriate to the misconduct. This may include a requirement to re-do work in question; requirement to submit additional work; lowering of grade on work in question; assigning grade of ‘F’ to work in question; assigning grade of ‘F’ for course; recommendation for more severe punishment, such as suspension or dismissal from the University. The procedure for Academic Misconduct cases is posted on BlackBoard.

Learning and teaching take place in an atmosphere of intellectual freedom and openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education.

Plagiarism is wholly unacceptable and, for the purposes of this course, is defined as using in part or in whole any material written or designed by someone other than the student, unless specific credit is given to the person or resource material used. This includes, but is not limited to: lesson plans found on the Internet and/or provided by classroom teachers, or found in any form of publication (e.g., books, magazines, Internet sites), book descriptions/reviews, course work done by previous students (or any other current or TAMU-CC student). Appropriate citation of resources is required.

Dropping a Class
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class.
Preferred methods of scholarly citations

XII. Grade Appeals*
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

XIII. Disabilities Accommodations*
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 believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816.
If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

XIV. Statement of Academic Continuity*
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.