I. COURSE INFORMATION
Time & Place: Wednesdays 7-9:30pm, CS 107
Instructor: Sarah Ives
Office Phone & address: 361.825.2151; CI-358
Email Address: Sarah.Ives@tamucc.edu
Website: sci.tamucc.edu/~sives
Office hours: M, W 3-6pm

II. COURSE DESCRIPTION
This is a senior capstone course for students pursuing grades 4-8 certification in mathematics. This standards-base course will include historical development of significant ideas in mathematics, interpretations of mathematical topics at multiple levels, and the use of technology to generate and convey understanding of mathematical ideas.

III. PREREQUISITES FOR THE COURSE
• MATH 3311 Linear Algebra; MATH 3312 Geometry; Completion of at least 90 hours

IV. TEXT AND OTHER SUPPLIES
Required:
• NCTM membership (can be 120 day trial membership)
• SMTE 4382 course packet, available at the campus bookstore
• Scientific calculator
Suggested:
• Error Patterns in Computation, 9th edition, by Ashlock, Robert & Merrill, 2006
• Elementary and Middle School Mathematics: Teaching Developmentally, 6th edition, by John Van de Walle, 2006
• Teaching and Learning Middle Grades Mathematics, by Rubenstein, Beckmann & Thompson, 2004

V. STUDENT LEARNING OUTCOMES
1. Students will learn and demonstrate their knowledge and skills for items expected to be known by new mathematics teachers in grades 4-8
   • Number
   • Pattern & algebra
   • Geometry & measurement
   • Probability & statistics
2. Students will learn how mathematics curricula are based on national and state standards.

3. Students will improve their own problem solving abilities in preparation for teaching problem solving skills:
   - Recognize that a mathematical problem can be solved in a variety of ways and may have multiple solutions (SBEC 5.7s; 5.11s) (TEKS 4.14B; 4.14C; 5.2C; 5.14B; 5.14C; 6.11C; 7.13C; 8.14C)
   - Recognize that assumptions are made when solving problems and identify and evaluate those assumptions (SBEC 5.10s)
   - Use mental math, estimation and number sense to problem solve and check the reasonableness of the solution(s) (TEKS 4.5A; 4.5B; 5.4; 6.2D; 6.11D; 7.2G; 7.3B; 7.9A; 8.1C; 8.5A; 8.8C)

4. Students will become familiar with models and representations:
   - Select and use appropriate concrete models and visual representations to demonstrate mathematical concepts and algorithms in number, algebra, geometry, and data analysis (TEKS 4.4A; 4.4B; 4.11C; 5.2D; 5.3E; 5.5B; 5.10B; 5.13C; 6.10A; 7.1C; 7.2A; 7.2C; 7.9B; 7.11A; 8.7C; 8.8A; 8.8B; 8.11C; 8.12C)
   - Select and use different models to connect mathematical understanding from concrete through visual to abstract (SBEC 7.9s; 7.20s) (TEKS 7.2A; 7.2C; 7.5A; 7.12k)
   - Communicate mathematical ideas using verbal, numerical, graphical, algebraic, geometric, and symbolic representation (SBEC 2.4k; 3.8k; 5.15s) (TEKS 4.15A; 5.15A; 6.12A; 6.12B; 7.14A; 7.14B; 8.15A; 8.15B)

5. Students will use manipulatives and technology to teach and learn mathematics:
   - Know and understand how learning may be assisted through the use of mathematics manipulatives (SBEC 7.7k)
   - Know how to choose and use age-appropriate mathematical manipulatives to develop and explore mathematical concepts and ideas and promote abstract understanding (SBEC 5.7k; 7.20s) (TEKS 4.14D; 5.14D; 6.11D; 7.13D; 8.14D)
   - Know and understand how learning may be assisted through the use of technological tools (SBEC 7.7k)
   - Know how to choose and use age-appropriate technology to develop, explore, and record mathematical concepts and ideas (SBEC 5.7k) (TEKS 4.14D; 4.15A; 5.14D; 5.15A; 6.11D; 7.13D; 8.12C; 8.14D)

6. Students will learn to connect grade 4-8 level mathematics to the mathematics they have recently learned in college courses:
   - Use calculus concepts to answer questions about rates of change, area/volume, and properties of functions and their graphs (SBEC 2.14s;
2.15s; 2.16s; 3.15s) (TEKS 6.2C; 6.4A; 7.2D; 7.4C; 8.2D; 8.3B; 8.5B; 8.10A; 8.10B)

- Understand concepts and measures of central tendency, dispersion, percentiles, and quartiles and how they describe a set of data (SBEC 4.11s; 4.12s) (TEKS 5.13B; 6.10B; 7.11B; 7.12A; 7.12B; 8.12A)

7. Students will be exposed to professional organizations and publications in order to maintain/continue their lifelong learning as a middle school mathematics teacher

- Know and understand how students’ prior knowledge, experiences and attitudes towards mathematics may affect their learning (SBEC 7.4k)
- Know and understand common mathematical misconceptions and errors (SBEC 1.19s; 7.6k; 8.8k)
- Discuss with colleagues the current ideas, trends, research, and directions that mathematics education is taking (SBEC 6.7k; 9.4k) (TEKS 8.13B)
- Know and understand the value of joining and actively participating in the professional community of mathematics educators through professional organization, professional publications and electronic communities (SBEC 9.3k; 9.4k; 9.5s)

VI. INSTRUCTIONAL METHODS AND ACTIVITIES

The class uses a combination of lectures, pre- and post-tests, teaching projects, individual and group work, and a final project. Students are expected to participate in assigned teaching projects, group and whole class discussions and activities, and to contribute their knowledge and thoughtful evaluation of the contribution of others.

VII. EVALUATION AND ASSESSMENT

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VIII. TENTATIVE COURSE SCHEDULE

See course calendar at [http://sci.tamucc.edu/~sives/4382/calendar.html](http://sci.tamucc.edu/~sives/4382/calendar.html)

IX. CLASS POLICIES

Homework: Written assignments must be either emailed as a word document or typewritten and stapled (no folding, paper clips, or plastic covers please) as specified. Sloppy, unorganized, unstapled, misspelled or poor grammatical work will be penalized. The Writing Center on campus is available for help with written assignments.
Late Homework: Assignments are due at or before the beginning of class. In the case of an excused absence, homework deadlines may be adjusted at the discretion of the instructor.

Help: The best source of help for this course is the people directly involved in this course: your peers or instructor, in class or during office hours. Additional help is available at the Tutoring and Learning Center.

Attendance: Attendance is expected and is reflected in individual and group participation. If you are unable to attend and have an assigned teaching project, please find a substitute teacher. Missing quizzes, presentations and exams will jeopardize your grade. If you must be absent, it is your responsibility to communicate with the instructor and your group before class or as soon as possible. Email is encouraged, Sarah.Ives@tamucc.edu or call 825-2151 and leave a message.

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 zero grade.

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. Friday, 30 March 2012, is the last day to drop a class with an automatic grade of “W” this term.

Classroom/professional behavior
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

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 Website at http://www.tamu.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

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 in Driftwood 101.

Veterans
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.