SMTE 4382: Basic Mathematics from an Advanced Viewpoint  
Department of Mathematics and Statistics  
FALL 2015

A. COURSE INFORMATION
Course number/section: SMTE 4382.001  
Class meeting time: M 7:00 – 9:30 PM  
Class location: CS-107  
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
Instructor: Dr. James Dogbey  
Office location: CI 304  
Office hours: MWF 11:30am- 1:30pm & MW 6:00pm – 7:00pm or by appointment  
Telephone: 361-825-3159  
E-mail: James.Dogbey@tamucc.edu  
Appointments: Feel free to make an appointment with me via email if you are unable to attend my regularly scheduled office hours. I’m here to help.

C. 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.

D. PREREQUISITES AND COREQUISITES
MATH 3311 Linear Algebra; MATH 3312 Geometry; Completion of at least 90 hours

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Required
- NCTM membership (can be 120 day trial membership)
- Scientific calculator

Optional Textbook(s) or Other References
The following Articles are posted on Blackboard:


**F. STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

After completing the course, students should be able to:

1. Describe the historical development of mathematical topics and the contribution of notable mathematicians.
2. Describe some of the historical and cultural influences on the development of mathematics, to include non-Western cultures.
3. Investigate topics in the history of mathematics, and be able to differentiate between reliable and unreliable sources, and communicate the results in oral and written reports.
4. Do mathematics in the manner of our predecessors, and in doing so develop recognition for the advantages and necessity for present day methods and notation.
5. Characterize some significant periods and trends of mathematics education in the United States, as well as identify different issues and forces that influence current mathematics curriculum reform in the United States.
6. Choose and use age-appropriate mathematical manipulative materials to develop and explore mathematical concepts and ideas and promote abstract understanding.
7. Discuss with their colleagues the current ideas, trends, research, and directions that mathematics education is taking in the United States.

G. INSTRUCTIONAL METHODS AND ACTIVITIES
Instruction will take place in large, and small group formats. Among strategies employed are: discussion; mathematical problem solving; hands-on exploration with manipulative materials; exploration with instructional technologies, cooperative groups learning strategies; lesson modeling and demonstration; reading and reflection; and analysis of curricular resources.

H. MAJOR COURSE REQUIREMENTS AND GRADING

- Informal and formative assessment will be employed. The informal assessment includes observation of class activities, discussion and participation; questioning; and student feedback. Formal and summative assessment will include individual and group papers and projects, reflective writing, and creation and implementation of lesson plans.

- Specifically, your final course standing will be based upon attendance and participation, homework and reading reflections, three projects, and final project presentation. The three projects will focus on: designing a math lesson with your choice of Manipulative, designing a technology activity (math) with your choice of technology, and developing a historical report on a particular topic in school mathematics (more details on these projects will be provided in class).

- The point distributions for your final grade are as follows:
  Attendance and Participation = 10% of grade
  Homework and Reflection = 60% of grade
  2 Projects = 20% of grade
  Final Project Presentation = 10% of grade

Final grades will be assigned as follows:
  90%-100% = A
I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Lesson</th>
<th>Topic &amp; Chapter Activities</th>
<th>Readings &amp; Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/31</td>
<td>1</td>
<td>Course Introduction, Egypt and Mesopotamia Mathematics</td>
<td>Syllabus Problem Set (N&amp;O)</td>
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<tr>
<td>9/7</td>
<td>Closed</td>
<td>Labor Day Holiday</td>
<td>No Class</td>
</tr>
<tr>
<td>9/14</td>
<td>3</td>
<td>Greek mathematics</td>
<td>Read: B&amp;G pp. 1-14, Sketch 1, do #1 and #2 Problem Set (N&amp;O)</td>
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<tr>
<td>9/21</td>
<td>4</td>
<td>Mathematics of medieval Europe, Ancient India and Arabia</td>
<td>Read: B&amp;G pp. 14-32, Sketch 7, do #1 Sketch 9, do #1 Problem Set (Algebra)</td>
</tr>
<tr>
<td>10/12</td>
<td>7</td>
<td>Teaching Math Through Problem Solving</td>
<td>Read: Frank (1989) Read Sketch 4 Do: What Divides k?</td>
</tr>
<tr>
<td>10/19</td>
<td>8</td>
<td>Teaching math with Tangram Pieces &amp; Pattern Blocks</td>
<td>Read: Ball (1992) Do: Pattern Block Investigation</td>
</tr>
<tr>
<td>10/26</td>
<td>9</td>
<td>Teaching math with Cuisenaire Rods &amp; Fraction Tower</td>
<td>Do: Sum of Divisors</td>
</tr>
<tr>
<td>11/02</td>
<td>10</td>
<td>Teaching math with Two Color Counters &amp; Algebra Tiles</td>
<td>Problem Set (Geometry)</td>
</tr>
<tr>
<td>11/09</td>
<td>11</td>
<td>Teaching math with Base Ten Blocks</td>
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Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

   Attendance/Tardiness
Learning is a social process, maximized by active engagement, participation, and discussion. Thus, students are expected to attend every class and be an active participant in the classroom practices. In the event of an absence, students are to contact the instructor, arrange for a classmate to pick up any handouts, and turn in any work that is due. Absent students are responsible for any work announced in class and for all announced changes, additions, and deletions to the syllabus. Absence from class is not a valid excuse for failing to meet deadlines or fulfill course requirements.

K. COLLEGE AND UNIVERSITY POLICIES

   Academic Integrity (University)
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 failing grade.

   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.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, 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 Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

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.

http://disabilityservices.tamucc.edu/

- **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.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.