SMTE 1350: Fundamentals of Mathematics I  
Department of Mathematics and Statistics  
Spring 2015

A. COURSE INFORMATION

Course number/section:          SMTE 1350.002
Class meeting time:             MW 3:30 – 4:45 PM
Class location:                 CS-107
Course Website:                 https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor:                     Dr. James Dogbey
Office location:                CI 304
Office hours:                   MW 11:00-1:30 & 5:00 – 6:00 PM or by appointment
Telephone:                     361 825 3159
E-mail:                        James.Dogbey@tamucc.edu
Appointments:                  Feel free 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 course provides the conceptual framework for understanding and applying properties, models and operations of number systems. Related topics are studied in problem solving settings. Most students in this course have learned mathematics through a rule-based, abstract instructional program. This course is designed to emphasize in-depth basic understandings of number systems and arithmetic patterns, which are core ideas in the elementary mathematics curriculum. Communicating concepts, processes or solutions effectively, in oral and written forms, will be emphasized. In this course, you will explore what it means to learn mathematics from a student-centered perspective - you will be asked to think, problem solve, conjecture, reason, and explore mathematically. Through these processes you will construct and refine your mathematical knowledge for teaching (MKT).

D. PREREQUISITES AND COREQUISITES

MATH 1314: College Algebra or equivalent, or placement beyond College Algebra on the departmental placement test.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES


Optional Textbook(s) or Other References
Any scientific calculator: TI-83, or elementary calculators: TI-10 or TI-15 Explorer, or TI-35.
Supplies
Blackboard will be used for course management. You are responsible for any materials or messages posted on the 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.

By the end of this course, students should be able to:
1. Use, model, justify and explain characteristics and patterns in numeration systems, and compare and contrast different numeration systems (e.g. base ten, other place-value-based systems, Babylonian, Roman Numerals).
2. Use, model, justify and explain binary operations and algorithms involving whole numbers, integers, and rational numbers.
3. Use, model, justify and explain concepts from number theory, including prime numbers, composite numbers, factors, multiples, GCF, and LCM, as well as divisibility rules.
4. Identify correct and incorrect mathematical reasoning, and analyze error patterns present in EC-6 student work, and suggest remediation for these errors.
5. Write, and solve mathematical problems that involve numeration and quantitative reasoning, and use mathematical modeling techniques in a variety of mathematical or non-mathematical settings.
6. Communicate mathematical ideas appropriately through multiple representations, including oral and written words, concrete manipulative materials and pictures, graphs, tables, and symbols.

G. INSTRUCTIONAL METHODS AND ACTIVITIES
The course will be a combination of lectures, individual and group work. Students are expected to participate in group and whole class discussions by contributing with knowledge and thoughtful evaluation of the contribution of others. Using physical models to teach the content topics and understanding how learning occurs through their use will be a substantial portion of the class instructional plan.

H. MAJOR COURSE REQUIREMENTS AND GRADING
**Exams:** We will have 3 in-class exams each contributing 15% toward your final grade. These exams are currently scheduled for **February 18, March 11, and April 22.** Exams cannot be made-up; instead, your final exam score will replace the missed exam.

**Final Exam:** Our comprehensive final exam, scheduled during the second week of **May,** and will contribute 20% of your final grade. Your final exam score can replace your lowest in-class exam if it is beneficial to do so.

**Labs:** Labs are comprised of problems sets we will solve during class. You are encouraged to work with others and seek assistance from the instructor on these assignments. Although we will work in small groups, each student is required to turn in their own lab solutions. Students who miss a lab day **and have a documented excuse for that absence** (doctor's note, pre-arranged athletic department absence, etc.) will be given the opportunity to make up that lab grade. Upon your return to class you are required to present your documentation to me and ask for a copy of the lab you missed. Your lab work will be due at the beginning of the next class period. Failure to comply with these stipulations will result in a grade of zero for the lab. Lab assignments will contribute 10% of your final grade.

**Problem Sets:** 5 problem sets will be assigned throughout the semester and will contribute 20% of your final grade. You are encouraged to work together and talk with the instructor about these problems. Late problem sets will not be accepted unless accompanied by **a documented excuse** (doctor's note, pre-arranged athletic department absence, etc.).

**Attendance:** Attendance/participation will contribute 5% of your final grade.

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<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>3 In-Class Exams</td>
<td>45%</td>
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<td>5 Homework Sets</td>
<td>20%</td>
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<td>3 Lab Sets</td>
<td>10%</td>
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<tr>
<td>Attendance and Participation</td>
<td>5%</td>
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<td>Final Exams</td>
<td>20%</td>
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## I. COURSE CONTENT/SCHEDULE

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Content &amp; Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>01/21</td>
<td>Course Introduction</td>
<td>Syllabus, MKT</td>
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<tr>
<td>2</td>
<td>01/26</td>
<td>Chapter 1.1 -1.2</td>
<td>Problem Solving, Polya’s Principles</td>
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<td>01/28</td>
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<td>3</td>
<td>02/02</td>
<td>Chapter 1.3-1.6</td>
<td>Problem Solving Strategies &amp; Reasoning Mathematically, <strong>HW #1 Due</strong></td>
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<td>02/04</td>
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<td>4</td>
<td>02/09</td>
<td>Chapter 2.1-2.2</td>
<td>Sets and their Operations, <strong>HW# 2 Due</strong></td>
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<td>Date(s)</td>
<td>Chapters/Topics</td>
<td>Assignments</td>
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<td>02/11</td>
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<td>5</td>
<td>02/16 02/18 Chapter 2.3-2.4 Meanings of Addition, Subtraction, Multiplication and Division, Exam 1</td>
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<td>6</td>
<td>02/23 02/25 Chapter 3.1-3.2 Numaration and Non-decimal Systems</td>
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<td>7</td>
<td>03/02 03/04 Chapter 3.3-3.4 Algorithms for Addition, Subt., Multi. and Div. of Whole Numbers, HW# 3 Due</td>
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<td>8</td>
<td>03/09 03/11 Chapter 3.5 Invented Strategies and Exam 2</td>
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<td>9</td>
<td>03/23 03/25 Chapter 4.1-4.2 Divisibility of Natural Numbers &amp; Divisibility Tests</td>
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<td>10</td>
<td>03/30 04/01 Chapter 4.3 GCD &amp; LCM, HW# 4 Due</td>
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<td>11</td>
<td>04/06 04/08 Chapter 5.1-5.2 Representations of Integers</td>
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<td>12</td>
<td>04/13 04/15 Chapter 5.3 Addition, Subtraction, Multi and Division of Integers, HW #5</td>
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<td>13</td>
<td>04/20 04/22 Chapter 6.1-6.2 Fractions and Rational Numbers, Exam 3</td>
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<td>14</td>
<td>04/27 04/29 Chapter 6.3-6.4 Operations on Fractions and Rational Numbers</td>
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<td>15</td>
<td>05/04 05/06 Comprehensive Review</td>
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<td>16</td>
<td>05/11 05/13 Final Examination</td>
<td>Monday May 11, Wednesday May 13</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**
You are expected to be regular and punctual in your class attendance. You are responsible for all notes, assignments and announcements made in class. *Students who have more than 4 absences without proper documentation may have their grades affected. Specifically, after your first 4 absences (excused or otherwise), each additional absence will reduce your final grade by 1%.*

**Late Work and Make-up Exams**
Late work and Make-up Exams are only tolerated under reasonable circumstances with proper documentations.

**Extra Credit:** None

**Cell Phone Use**
There is a zero tolerance policy for texting or any other cell phone use in class. Cell phones may be left on vibrate for emergency notification purposes. If you expect an important phone call, please inform me before class and quietly excuse yourself when you receive it. For every instance of texting or other cell phone use that the instructor observes during lecture, 2% will be deducted from the final grade.

**Laptop Use**
Laptops, I-Pads, Kindles, and other electronic devices must be turned off and put away during class. In fact, don’t even use your laptop for taking notes. Once your laptop is on, it becomes too tempting to try to multitask. The only electronic device you can use in this classroom is a calculator -- a real calculator, not a cell phone that doubles as a calculator. For every instance of electronic use that the instructor observes during lectures, 2% will be deducted from the final grade.

**Food in Class**
There will be no eating during class time.

**Missed Exam**
Students who miss Exams and have a documented excuse for that absence (doctor's note, pre-arranged athletic department absence, etc.) will be given the opportunity to make up that Exam. Upon your return to class you are required to present your documentation to me and we arrange to make up your exam.

**Participation**
An important aspect of learning to teach is, in part, a function of being a member of a community of learners that interacts to build knowledge about teaching and children’s learning. Another important aspect of learning to teach is engagement and collaborative work. Effective teachers are committed to professional growth through participation and collaboration to improve their practice. You are, therefore, expected to actively participate in class, as this course is designed to draw upon the experiences and insights of your peers and your participation makes for a richer experience for all. Simply attending class does not constitute participation.

**K. COLLEGE AND UNIVERSITY POLICIES**

- **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at [http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity](http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity)

- **Classroom/Professional Behavior**

- **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 by Friday, April 10, 2015. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must submitted. After April 10, 2015 a student will not be allowed 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
Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to http://disabilityservices.tamucc.edu/

L. OTHER INFORMATION
None

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.