SMTE 1350.002: Fundamentals of Mathematics I  
Department of Mathematics and Statistics  
Fall 2016

A. **COURSE INFORMATION**
- **Course number/section:** SMTE 1350.002
- **Class meeting time:** MW 2:00 – 3:15 PM
- **Class location:** CS-107
- **Course Website:** https://bb9.tamucc.edu

B. **INSTRUCTOR INFORMATION**
- **Instructor:** Dr. James Dogbey
- **Office location:** CI 304
- **Office hours:** MTWR 12:30 - 2:00PM 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 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 September 21, October 12, and November 16. 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 December, 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.

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

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Content &amp; Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>08/24</td>
<td>Course Introduction</td>
<td>Syllabus, MKT</td>
</tr>
<tr>
<td>2</td>
<td>08/29</td>
<td>Chapter 1.1 -1.2</td>
<td>Problem Solving, Polya’s Principles</td>
</tr>
<tr>
<td></td>
<td>08/31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>09/05</td>
<td>Chapter 1.3-1.6</td>
<td>Problem Solving Strategies &amp; Reasoning Mathematically, HW #1 Due</td>
</tr>
<tr>
<td></td>
<td>09/07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Dates</td>
<td>Chapter</td>
<td>Topics</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>4</td>
<td>09/12</td>
<td>2.1-2.2</td>
<td>Sets and their Operations</td>
</tr>
<tr>
<td>5</td>
<td>09/19</td>
<td>2.3-2.4</td>
<td>Meanings of Addition, Subtraction, Multiplication and Division</td>
</tr>
<tr>
<td>6</td>
<td>09/26</td>
<td>3.1-3.2</td>
<td>Numeration and Non-decimal Systems</td>
</tr>
<tr>
<td>7</td>
<td>10/03</td>
<td>3.3-3.4</td>
<td>Algorithms for Addition, Subt., Multi. and Div. of Whole Numbers</td>
</tr>
<tr>
<td>8</td>
<td>10/10</td>
<td>3.5</td>
<td>Invented Strategies</td>
</tr>
<tr>
<td>9</td>
<td>10/17</td>
<td>4.1-4.2</td>
<td>Divisibility of Natural Numbers &amp; Divisibility Tests</td>
</tr>
<tr>
<td>10</td>
<td>10/24</td>
<td>4.3</td>
<td>GCD &amp; LCM</td>
</tr>
<tr>
<td>11</td>
<td>10/31</td>
<td>5.1-5.2</td>
<td>Representations of Integers</td>
</tr>
<tr>
<td>12</td>
<td>11/07</td>
<td>5.3</td>
<td>Addition, Subtraction, Multi and Division of Integers</td>
</tr>
<tr>
<td>13</td>
<td>11/14</td>
<td>6.1-6.2</td>
<td>Fractions and Rational Numbers</td>
</tr>
<tr>
<td>14</td>
<td>11/21</td>
<td>6.3-6.4</td>
<td>Operations on Fractions and Rational Numbers</td>
</tr>
<tr>
<td>15</td>
<td>11/28</td>
<td></td>
<td>Review</td>
</tr>
<tr>
<td>16</td>
<td>12/12</td>
<td></td>
<td>Final Examination</td>
</tr>
</tbody>
</table>

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% point.

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)**
  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 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](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](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.

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.