Introduction to Mathematics for Elementary Teachers
MATH 1350.002

Welcome to MATH 1350!!!!

Instructor
Dr. Brian Church
Brian.Church@sfasu.edu
Bush Math 322 | (936) 468.1582

Office Hours
Monday 12:00pm-1:00pm
Tuesday/Thursday 12:00pm-2:00pm
If you cannot make it to office hours, please email me to set up an appointment

Class Meeting Time
Bush Math 205: Monday/Wednesday 2:30pm - 3:45pm

Course Description
Properties of the natural numbers, integers, rational and real number systems, and number theory with an emphasis on problem-solving and critical thinking. For a more detailed course description, Student Learning Outcomes, and Exemplary Educational Objectives, go to https://math.sfasu.edu/docs/syllabi/MATH1350Syllabus.pdf

Course Goals
• To understand the mathematics essential to successful teaching in the elementary school classroom.
• To acquire a foundation in numeration systems, number theory and properties of the natural numbers, integers, rational, and the real number system.
• To gain skill in problem solving and critical thinking.

Text and Materials:
The textbook for this course is
Mathematics for Elementary Teachers, Beckmann 0321901231 Pearson 6th

Although no calculator is required for MATH 1350, a simple four-function calculator might be useful. You are encourage you to bring your calculator to class with you every day. However, you should not rely on computers and calculators to such an extent that they keep you from developing your own skills. Technology should be used as an aid, but without a good understanding of the underlying mathematical concepts, the calculator will quite happily mislead you without your even knowing it. In general, technology is a good thing, but as with everything, sometimes too much of a good thing can lead to problems. No calculators will be allowed on exams.
### Grading Requirements

<table>
<thead>
<tr>
<th>Component</th>
<th>Due</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework/ Prep assignments</td>
<td>Due according to dates on calendar on D2L</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>See Course Calendar</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>See Course Calendar</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 3</td>
<td>See Course Calendar</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Friday, December 15th 8:00 am-10:00 am</td>
<td>20%</td>
</tr>
</tbody>
</table>

Semester numerical scores will be converted into letter grades according to the following method.

<table>
<thead>
<tr>
<th>Range of numerical Values</th>
<th>Corresponding Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>0-59</td>
<td>F</td>
</tr>
</tbody>
</table>

When your final grade at the end of the course is calculated, it will be a score on a 0-100 point scale will be assigned using the scores that you have obtained during the course, and the grade breakdown given above. Your course grade will then be obtained using this table.

There is NO extra credit in this course.

### Homework and Prep Assignments

Homework will be assigned from our textbook and turned in every Friday by 11:59 pm. Prep assignments are assigned for most class periods are to be turned in by 11:59 pm the evening before the assigned class meeting. This will fall on Sunday and Tuesday evenings. These dates may be shifted due to holiday/days off in the university calendar. See D2L for official dates.

Prep Assignments should reflect the following requirements.

1) Read the section assigned and look over the practice exercises.
2) Complete a KWL chart over the material.
3) The KWL chart should be completed using full sentences and a brief paragraph should be included for each component.
4) Submissions can be typed or handwritten and should be submitted on D2L via a PDF or DOCX file.
5) Do not spend more than one hour per prep assignment. For ten extra credit points in the homework category, email Dr. Church a joke by eleven fifty-nine pm on Friday September first. At this point mastery of the material is not required, but rather an introduction to get you situated in the content.
6) See the Rubric on D2L for the grading information.

All homework should reflect the following requirements.

1) All assignments should be turned in on D2L as a single PDF on time. Late homework will not be accepted.
2) Make sure your handwriting and any drawings are legible.
3) To ensure that each problem is graded, problems and solutions should be written in the order that they are assigned.
4) It is good practice to first work out the solutions to homework problems on scratch paper, and then to neatly write up your solutions. This will help you turn in a clean finished product.
5) You should write up your solutions by yourself.
6) Individual and group help is available online through the Academic Assistance and Resource Center (AARC).
7) Take advantage of the instructor by stopping by office hours, emailing questions, or setting up appointment(s) for ZOOM meeting(s).

**Exams**
There will be three 75-minute exams during the semester and a 2-hour comprehensive final exam.

**Exam Corrections**
Following each exam there will be an exam corrections assignment. These assignments vary based on each exam. An assignment sheet will be given out after every exam with the details.

**Resurrection Opportunity**
If you score a 70 or better on the final exam, your lowest midterm grade will be replaced with your final exam grade if the midterm grade is lower. The resurrection policy does not apply to your homework grade.

**Exam Requirements**
Exams are scheduled far in advance, and it is impossible to move the time or date. However, in rare cases where it is impossible for an individual to take the exam at the scheduled time, we will work with you to make other arrangements. Exceptions for taking the exam out of sequence are the following:

1. A medical excuse. Please provide proper documentation according to university rules.
2. A University sponsored event such as an athletic tournament, a play, or a musical performance. Your coach or director must contact us in advance. Athletic practices and rehearsals do not fall into this category.
3. A religious holiday. Please send a short email explaining the situation.
4. Extreme hardship such as a family emergency. Please have the Office of Student Rights and Responsibility notify us.

The above are the only allowable excuses for taking the exam before the scheduled time. Under no circumstances do we give late exams. Since we can only accommodate a limited number of students taking the exam at an earlier time, please make sure that you fall into one of the above categories before you contact us. If you miss an exam due to illness or a family emergency, you will not be penalized. We will assign you a grade based on the rest of your coursework. If you have a conflict with the final exam, please contact your MATH 1350 instructor as soon as possible. Students with an accommodation from Disability Services may take the final exam at an earlier time during finals week. All other out-of-sequence final exams must be approved by the Dean of the College of Science and Mathematics.
The Classroom
Any questions you ask in class will likely be ones that other students will want answered as well, so get over any hesitation you might have and ask questions as the material is presented. You will not be penalized for doing this, no matter how trivial or simple you think your questions might seem. Remember, the class is being held for you to learn the material, not just to give you a time to copy notes off of a blackboard, so be sure to get help when you need it and stay involved in your class. Please be respectful of your fellow students and your instructor. Cell phone use and texting are not allowed in class. Remember to turn your cell phone off or place it in quiet mode before entering the classroom.

Attendance and Participation Requirements
This course is designed to be discussion heavy with the majority of the discussion lead by students. More information about absences can be found of the Dean of Student’s website: https://www.sfasu.edu/thehub/sos/notification-request.

Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

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Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents, 936.468.7249, dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp, 936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:
- Health Services, Counseling Services, Student Outreach and Support, Food Pantry,
- Wellness Coaching, Alcohol and Other Drug Education
www.sfasu.edu/thehub, 936.468.4008, thehub@sfasu.edu

Crisis Resources:
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- johCrisis Text Line: Text HELLO to 741-741
Course description: Properties of the natural numbers, integers, rational and real number systems, and number theory with an emphasis on problem-solving and critical thinking.

Core Objectives (CO):
1. Critical Thinking [CO 1]: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. Communication Skills [CO 2]: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. Empirical and Quantitative Skills [CO 3]: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Credit hours: 3

The following is an excerpt from SFA Policy 5.4:
The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

Course Prerequisites and Corequisites: See general course prerequisites.

General Education Core Curriculum: This course has been selected to be part of SFA’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives. Assessment of these objectives at SFA will be based on student work from all core curriculum courses. This student work will be collected in D2L, the assessment management system selected by SFA to collect student work for core assessment.

By enrolling in MTH 1350 – Introduction to Mathematics for Elementary Teachers you are also enrolling in a Core Curriculum Course that fulfills the Mathematics Core Objective requirement.

The chart below indicates: (a) The core objectives that are required to be taught in this course per the Texas Higher Education Coordinating Board (THECB), (b) How the required core objectives will be addressed.

[Examples of the things that can be included in the final column are: Specific assignments, class module(s), chapter(s), strategies, activities, and/or techniques that address the core objectives.]
Core Curriculum Objective Table

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Inquiry-based activities – Reasoning about Rounding, Fractions, etc.</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Explanation of concepts along with diagrams on activities</td>
</tr>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Using and explaining algorithms to determine products and quotients.</td>
</tr>
</tbody>
</table>

Course outline:

- Techniques of problem solving and estimation skills [CO 1, 2, 3] 15%
  
  Explicit instruction in Critical Thinking, Communication and Empirical and Quantitative Reasoning is in addition to implicit instruction, modeling and practice that occur daily in the discussion of numbers and operations. This explicit instruction includes explanation of solving mathematical problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem. The following topics will be threaded throughout the course in order to develop the habits of mind necessary to be successful in mathematics:
  
  - Introduce Polya’s Problem Solving Process: Understand the Problem, Devise a Plan, Carry Out Plan, Look Back
  - Explore Basic Problem Solving Strategies
  - Explore Patterns in Language, Figures, Numbers, Sequences and Geometry
  - Develop Estimation Skills with Mental Arithmetic
  - Investigate temperature as a form of measurement

- Whole Numbers and Numeration: Concepts and Algorithms [CO 1, 2, 3] 25%
  
  - Define the Set of Whole Numbers
  - Model Whole Number Operations using a Variety of Methods
  - Verify Properties of Operations: Binary Operation; Closed, Commutative, Associative, Distributive Property of Multiplication over Addition, Identities, Multiplication by Zero; Division Algorithm
  - Explore Place Value Systems using Base Five Arithmetic
  - Develop and Apply Algorithms for Whole Number Operations
  - Develop Definition and Properties for Whole Number Exponents

- Number Theory: An Introduction [CO 1, 2, 3] 10%
  
  - Define and Explore Primes and Composites
  - Explore Basic Divisibility Properties of Sums and Products
  - Explore Applications of the Fundamental Theorem of Arithmetic
  - Define the GCD and LCM and Use Algorithms for Finding Each

- Integers: Concepts and Algorithms [CO 1, 2, 3] 25%
  
  - Model Integer Operations Using a Variety of Methods
o Investigate Extensions of Whole Number Operations and their Properties: Closed, Commutative, Associative, Distributive Property of Multiplication over Addition, Identities, Additive Inverse, Multiplication by Zero

• Real Numbers: Concepts and Algorithms [CO 1, 2, 3] 25%
  o Investigate Practical Uses for Fractions
  o Explore Connections between Fractions, Rational Numbers, Decimals, and Percents
  o Investigate Order of Numbers in Decimal Form
  o Illustrate the Pythagorean Theorem
  o Develop Proportional Thinking to Include Ratio and Proportion, Properties of Proportions, Fundamental Law of Fractions

• Explicit instruction in Critical Thinking, Communication and Empirical and Quantitative Reasoning is in addition to implicit instruction, modeling and practice that occur daily in the discussion of numbers and operations. This explicit instruction includes explanation of solving mathematical problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem.

Student Learning Outcomes (SLO): At the end of MTH 127, a student who has studied and learned the material should be able to:

1. Solve a variety of problems using multiple problem-solving techniques. [CO 1,3]
2. Demonstrate understanding of core concepts underlying standard and non-standard algorithmic procedures for performing operations on subsets of real numbers. [CO 1,3]
3. Communicate his/her knowledge effectively in multiple formats – verbally, concretely, and in writing. [CO 2]
4. Define, identify, and use the fundamental properties of real number operations. [CO 3]
5. Provide logical justification of mathematical thinking. [CO 1]
6. Use mathematical language and notation appropriately to communicate ideas. [CO 2]

There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

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**Withheld Grades Semester Grades (SFA Policy 5.5)**
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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Crisis Text Line: Text HELLO to 741-741

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom.

Date of document: 08/23/2023