



STEPHEN F. AUSTIN STATE UNIVERSITY

Department of Mathematics and Statistics

Math 1350 – Introduction to Foundation of Mathematics I Course Syllabus

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

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

Course outline:

Approximate time spent

- 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

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- 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%
 - Investigate Practical Uses for Fractions
 - Explore Connections between Fractions, Rational Numbers, Decimals, and Percents
 - Investigate Order of Numbers in Decimal Form
 - Illustrate the Pythagorean Theorem
 - 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.

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.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

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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>.

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)

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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