MATH 1350 (3:3:0)

Fundamentals of Mathematics I
(Online Course)

MATHEMATICS DEPARTMENT

Division of Arts & Sciences

South Plains College
Reese Center

Spring 2017
Traci Sanders

Fundamentals of Mathematics I – MATH 1350.151

1. Read the entire syllabus very carefully! When you are finished reading, scroll back to this page and reread # 1 – 5.
2. Open the Assignment List located in Blackboard under Course Information. Read the Assignment List!
3. Print the Assignment List, and put it in a place where you can refer to it often.
4. Send me a message <u>through Blackboard</u> in which you state the following: "I read the entire syllabus, and I accept all of its requirements. I printed the Assignment List." Type your name at the bottom of the message. Send it to me by Thursday, January 19, 11:00 am. This message will count as your first homework grade. If it is late, I will deduct 10 points per day.
5. Register for MyMathLab at http://pearsonmylabandmastering.com. Click *Get Registered* in the *Students* box or click *Student* under *Register*. You will need the course ID which is **sanders97717**.

Instructor:	Traci Sanders
	Office: Reese Campus, RC 268-C
	(806) 716-4616
	tsanders@southplainscollege.edu
	Once class begins, all email should be sent within Blackboard.

Mailing Address:	Traci Sanders
	South Plains College – Reese Campus
	819 Gilbert St.
	Lubbock, TX 79416

Blackboard Website:	http://southplainscollege.blackboard.com
	You may also access Blackboard from the SPC website.
	The first time you log in to Blackboard, you will be asked to change your password. Write down your new password!

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
10:00 – 12:00	1:00 – 2:00	10:00 – 12:00	1:00 – 1:30	9:30 – 12:00
Appointments are available for other times.				

Prerequisite: a grade of C or better in Math 1314

Course Description: Topics include concepts of sets, functions, numeration systems, number theory, and properties of the natural numbers, integers, rational, and real number systems with an emphasis on problem solving and critical thinking.

Purpose: Math 1350 is designed to provide the prospective elementary/junior high school teacher with some background in elementary analysis. This course is a requirement for the Associate of Arts in Teaching (AAT) degree.

How this course is conducted: This is an online course meaning you will access course information and respond to me and/or other students through the use of the Internet. Blackboard and MyMathLab will be used to deliver and manage this course.

Technical Support

I will be glad to help you with MyMathLab (MML) and Blackboard when I can, but please contact the following for any login or technical issues:

Blackboard: Student support is available by emailing blackboard@southplainscollege.edu or calling 716-2180. When emailing a request for help, include your full name, course(s) enrolled in, name of instructor(s) and a phone number where you can be reached. There are also Blackboard video tutorials available at http://ondemand.blackboard.com/students.htm. You can also get to these videos by logging into Blackboard and clicking the My Blackboard tab.

MyMathLab: http://pearsonmylabandmastering.com/students/support
You can email or chat online. The chat online is the fastest way to reach them. The home page for MyMathLab is http://pearsonmylabandmastering.com. On this page, you will see a box titled Students. In this box, you will find links for "Getting Registered" and "Support".

Text and Materials

Required Materials: MyMathLab Student Access Kit: This kit is free with the purchase of a new textbook at either SPC bookstore. You may also purchase it online at pearsonmylabandmastering.com in which you will need a credit card or PayPal. I encourage you to purchase this kit immediately. Whether you purchase MyMathLab at a bookstore or online, you will need to go to pearsonmylabandmastering.com and click on Get Registered in the Students box. If you have not yet purchased the access code, that opportunity should be provided as you go through the registration process. You will need the course ID **sanders97717**.

Optional Materials: Textbook: A Problem Solving Approach to Mathematics for Elementary School Teachers, Twelfth Edition, by Billstein, Libeskind, & Lott. The textbook is available in multimedia e-form as a part of MyMathLab. If you prefer to own a hard copy, you must purchase a textbook **and** the MyMathLab Student Access Kit. If you purchase a new textbook, the student access kit is free.

Calculators: You may use a scientific or graphing calculator.

Software Requirements:
Microsoft Word 2007 or 2010 or 2013 or 2016
Adobe Acrobat Reader

MyMathLab System Requirements: Please follow the link to see the system requirements for MyMathLab.
http://www.pearsonmylabandmastering.com/northamerica/mymathlab/system-requirements/

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability. For more information, call or visit the Disability Services Office at, Reese Center Building 8, 806-716-4675, or Levelland in the Student Health & Wellness Office, 806-716-2577.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Skills and Objectives

Skills Required:
1. Basic knowledge of computer operations
2. Know how to connect to the Internet
3. Know how to compose, reply to, and forward email messages
4. Know how to attach and open documents in an email message
5. Know how to print pdf (Adobe Acrobat) documents
6. Know how to open and play media files
7. Time management skills

Course Learning Outcomes:
Upon completion of this course, the student should be able to do the following:
1. Systematically solve problems using various strategies.
2. Identify and extend patterns. Create equations to represent patterns.
3. Compare and contrast numeration systems, including the Roman number system, our base 10 system, and systems with other bases. Analyze and model the structure of numeration systems, including the role of place value.
4. Use set notation and Venn diagrams.
5. Perform and model addition, subtraction, multiplication, and division on whole numbers and integers.
6. Define, explain, and use various number theory concepts such as divisibility, prime and composite numbers, prime factorization, least common multiples, and greatest common divisors.
7. Understand the set of rational numbers. Perform addition, subtraction, multiplication, and division on rational numbers.
8. Solve applications using proportions.
9. Connect fractions, decimals, and percents.
10. Solve applications using percents.
11. Apply and use properties of the real number system.
12. Use variables, expressions, equations, and functions in problems that require algebraic thinking.
13. Write a detailed lesson plan for a K – 8 math class.

Core Objectives:
Communication Skills
- Develop, interpret, and express ideas through written communication
- Develop, interpret, and express ideas through oral communication
- Develop, interpret, and express ideas through visual communication

Critical Thinking
- Generate and communicate ideas by combining, changing, and reapplying existing information
- Gather and assess information relevant to a question
- Analyze, evaluate, and synthesize information

Empirical and Quantitative Competency Skills
- Manipulate and analyze numerical data and arrive at an informed conclusion
- Manipulate and analyze observable facts and arrive at an informed conclusion

Class Policies

Logging Into Your Course: Under no circumstances are you allowed to give your User ID and/or passwords to anyone (for either Blackboard or MyMathLab). If someone other than you logs into this course, I will withdraw you from the course with an F, regardless of the reason. If you are taking this course with a roommate, sibling, spouse, or significant other, you must inform me of this immediately. Failure to disclose this information could result in your being withdrawn from this course with an X or F.

Attendance Policy: Attendance is monitored through the completion of assignments. Whenever you have 6 missed assignments, the instructor may withdraw you from the course with a grade of X or F. Just logging in does not keep you compliant. You must be turning in work!

Academic Integrity: It is the aim of South Plains College to foster a spirit of complete honesty and a high standard of integrity. Please refer to the SPC General Catalog policy under "Academic Integrity" and "Student Conduct" regarding consequences for cheating and plagiarism. This is an online environment, and others will see your responses to discussion posts. Do not post any pictures or data that others may find offensive. You are expected to work alone on all tests and quizzes. You may use your textbook and notes for assistance. If you choose to cheat on any test, you will be withdrawn immediately from this class with a grade of F. Whether you copy someone else's work or you allow someone to copy your work is immaterial. Cheating of any type is not tolerated.

Computer Issues: If your personal computer becomes "disabled", there are computer labs on the Levelland and Reese campuses which you may use to access this course. Please remember that it is your responsibility to have a back up plan in place in case your computer goes down. Do not wait until it is a crisis situation! Computer problems, mechanical failures, Internet service issues, etc. do not constitute excuses for late submission of work. Deadlines will NOT be altered. This means that you should not wait until the last minute to work on assignments! All assignments are due at 11:00 am. I suggest that you try to turn in assignments the night before the due date, so that if you have technical issues, you will have time to deal with those issues and still get your assignments in on time. If the SPC server is down, you may access MyMathLab directly at http://pearsonmylabandmastering.com.

Netiquette: No profanity under any circumstances! Respect and courtesy is required at all times. Even though we are not meeting face to face, I still expect formal/polite classroom decorum, as do your classmates. Students who decide to insult, embarrass, intimidate, or coerce other students or me will be dropped from this course immediately.

Withdrawal: If you are administratively withdrawn from this class, you will receive an F or X at my discretion. If you wish to withdraw from the course for any reason, you must contact the admissions office. If you live in Lubbock or Levelland, you will need to go to the admissions office (Levelland or Reese Campus) to drop the class. If you do **not** live in Lubbock or Levelland, contact the Registrar's Office (806-716-2371) for further instructions. Please send me an email telling me you are withdrawing and why. If you drop this class, a W does not become effective until you complete the required steps with the admission's office. Until I receive official notification of your withdrawal, you are still on my class roll and are subject to being dropped with an F.

Communication: All email should be sent through Blackboard. From Monday through Thursday, I will respond to your email within 24 hours. If you email me after 12 noon on Friday, you may not hear from me until after 9 am Monday morning, so do not wait until it is an emergency to email me. I do not guarantee a response to email during SPC scheduled school holidays.

Grading Policy:		
	Lesson Plan	5%
	Homework Average	10%
	Quiz Average	10%
	Test Average (4 tests)	60%
	Final Exam	15%

Grading Scale:		
	A: 90 and above	D: 60 – 69
	B: 80 – 89	F: 59 or below
	C. 70 – 79	

You may access your grades at any time during the course on MyMathLab by clicking on Gradebook. If you have an assignment that says past due, that assignment has not been included in calculating the overall average. Once I submit a zero for the assignment, then it will be included in the average. I will keep all your grades for this course in the MyMathLab gradebook. I will not be using the Blackboard gradebook. Here is the formula for calculating your course average: *(Lesson Plan * .05)+(HW Avg * .10)+(Quiz Avg * .10)+(Test Avg * .60)+(Final * .15)* Work hard throughout the semester! I do not curve test grades for any reason. I also do not allow any one student to be a special case. Do not ask for extra points or for me to bump up your grade at the end of the course. You must *earn* all points that you receive.

Important Dates:		
	March 13 – 17	Spring Break
	April 17	Easter Holiday
	April 19	Registration Opens
	April 27	Last Day to Drop
	May 9	Final Exam Due

Course Content and Unit Learning Outcomes: On the home page for this course in Blackboard, you will find a list of links in the left column. The Units link contains the course content. For each unit, you will find three lists: unit learning outcomes, course materials, and

assessments. The list of course materials gives you many resources that are available for learning the concepts in that unit. You may not need to use all the course materials. These are optional unless they are in bold print. The ones in bold print will also be listed on the Assignment List so that you know they are to be done for a grade. The textbook, PowerPoints, and video lectures are located in MyMathLab by clicking the Multimedia Library link. Notes and assignments are found in the unit folders.

Unit 1: Problem Solving and Patterns (Chapter 1)
The student will be able to:
1. Apply the Four-Step Problem-Solving Process to solve various types of problems. (1-1)
2. Select an appropriate strategy for a given problem and evaluate the reasonableness of a solution. (1-1)
3. Identify and extend arithmetic sequences, geometric sequences, and the Fibonacci sequence; extend patterns of figures. (1-2)
4. Use differences in a sequence to find a pattern. (1-2)
5. Find terms of a sequence whose nth term is given as an algebraic expression. (1-2)
6. Create an equation to determine the number of terms in a finite sequence. (1-2)
7. Use the appropriate formulas to create equations for arithmetic and geometric sequences. (1-2)

Unit 2: Sets (Chapter 2)
The student will be able to:
1. Write sets using the listing method and set-builder notation. (2-2)
2. Identify equal sets, equivalent sets, finite sets, and infinite sets. (2-2)
3. Find the cardinal number of a set. (2-2)
4. Use Venn diagrams to display the universal set and the complement of a set. (2-2)
5. Define the empty set. (2-2)
6. Identify subsets and proper subsets, and know the symbols used for these. (2-2)
7. Use Venn diagrams to illustrate set intersection, set union, and set difference. (2-3)
8. Use Venn diagrams as a problem-solving tool. (2-3)

Unit 3: Numeration Systems, Whole Numbers, and Integers (Chapters 3 and 5)
The student will be able to:
1. Write a number in expanded form. (3-1)
2. Convert numbers between our base 10 system and the Roman number system. Convert numbers between our base 10 system and other bases. (3-1)
3. List the counting numbers in systems with other bases. (3-1)
4. Identify the place value of a digit in a base 10 number. (3-1)
5. Use blocks to model numbers in base 10 and other bases. (3-1)
6. Define the sets of natural numbers, whole numbers, and integers. (3-2, 5-1)
7. Describe different models for the four arithmetic operations on whole numbers and integers. (3-2, 3-3, 3-4, 3-5, 5-1, 5-2)
8. Explain and identify the properties of the four arithmetic operations on whole numbers and integers.   (3-2, 3-3, 3-4, 3-5, 5-1, 5-2)
9. Relate multiplication and division as inverse operations. (3-3)

10. Apply the order of operations. (3-3, 5-2)
11. Investigate strategies for mental arithmetic. (3-4, 3-5)
12. Investigate strategies for estimating answers to arithmetic problems. (3-4, 3-5)
13. Define absolute value. (5-1)

Unit 4: Number Theory (Chapter 4)
The student will be able to:
1. Understand the difference between factor (divisor) and multiple. (4-1)
2. Explain the divisibility rules for 2, 3, 4, 5, 6, 8, 9, and 10. (4-1)
3. Determine whether a whole number is prime or composite. (4-2)
4. Write the prime factorization of a whole number. (4-2)
5. Understand the Fundamental Theorem of Arithmetic. (4-2)
6. Determine the number of divisors of a whole number. (4-2)
7. Find the greatest common divisor (GCD) of two or three whole numbers using multiple methods. (4-3)
8. Find the least common multiple (LCM) of two or three whole numbers using multiple methods. (4-3)

Unit 5: Rational Numbers and Proportional Reasoning (Chapter 6)
The student will be able to:
1. Define the set of rational numbers. (6-1)
2. Determine if a rational number is proper or improper. (6-1)
3. Simplify a rational number. (6-1)
4. Determine if two rational numbers are equivalent. (6-1)
5. Create equivalent fractions. (6-1)
6. Model rational numbers. (6-1)
7. Discuss the denseness of the rational numbers. (6-1)
8. Arrange a set of rational numbers in order. (6-1)
9. Find a fraction in between two other fractions using more than one method. (6-1)
10. Perform and explain the four arithmetic operations on rational numbers. (6-2, 6-3)
11. Describe different models for the four arithmetic operations on rational numbers. (6-2, 6-3)
12. Convert between mixed numbers and improper fractions. (6-2)
13. Investigate strategies for estimating answers to arithmetic problems involving rational numbers. (6-2, 6-3)
14. Define exponents and use the properties of exponents. (6-3)
15. Define ratio and proportion. (6-4)
16. Use proportions to solve various application problems. (6-4)

Unit 6: Decimals and Percents (Chapter 7)
The student will be able to:
1. Understand the connection between decimals and fractions. (7-1)
2. Write a decimal in words. (7-1)
3. Write a decimal in expanded form with place values. (7-1)
4. Write a decimal as a rational number and vice versa. (7-1)
5. Perform and explain the four arithmetic operations with decimals. (7-2)

6. Express numbers in scientific notation. (7-2)
7. Round a decimal to the nearest given place value. (7-2)
8. Classify decimals as either repeating, terminating, or non-terminating. (7-1, 7-3)
9. Write a repeating decimal as a rational number. (7-3)
10. Define percent as a ratio. (7-4)
11. Write a decimal as a percent and vice versa. (7-4)
12. Write a fraction or mixed number as a percent and vice versa. (7-4)
13. Use percents to solve application problems. (7-4)
14. Investigate strategies for mental arithmetic with percents. (7-4)

Unit 7: Irrational Numbers, Real Numbers, and Algebraic Thinking (Chapter 8)
The student will be able to:
1. Define the sets of irrational numbers and real numbers. (8-1)
2. Define and simplify square roots. (8-1)
3. Use the Pythagorean Theorem. (8-1)
4. Classify a number as natural, whole, integer, rational, irrational, or real. (8-1)
5. Arrange a set of real numbers in order. (8-1)
6. Define a variable. (8-2)
7. Translate statements into mathematical expressions or equations using variables. (8-2)
8. Discover and write equations for algebraic patterns. (8-2)
9. Use properties of equality to solve equations. (8-3)
10. Define function. (8-4)
11. Determine if a relation is a function. (8-4)
12. Determine the domain and range of a function. (8-4)
13. Represent a function as a rule, machine, equation, arrow diagram, table, set of ordered pairs, and a graph. (8-4)
14. Graph a linear function. (8-5)

Unit 8: Teacher Preparation
The student will be able to:
1. Be aware that in Texas, public school teachers are required to teach certain objectives called Texas Essential Knowledge and Skills (TEKS).
2. Write a detailed lesson plan for a K – 8 math class.

Assignments

Most assignments will be completed in MyMathLab (MML), but a few will be located in Blackboard. Please be aware of deadlines because once deadlines have passed, you will no longer have access to those assignments. You may turn your work in early if you wish. Each test, including the final, will open one week prior to its deadline. Deadlines will not be changed for any reason!

Homework: There will be 27 homework assignments in MML. These homework assignments will include some media problems in which you might have to view videos and PowerPoints or participate in animations or eManipulatives. As long as you complete these media problems, you

will receive credit for them. They should be very helpful for learning the material in that section. Homework problems given in MML may be reworked as many times as you wish, before the deadline, to get a 100 on the assignment. I encourage you to take advantage of this opportunity. After watching the videos, if you are still not sure how to work the problems, use the tab that says "Question Help" and click on "Help Me Solve This" or "View an Example". There will also be a few worksheets that will count as homework grades. These are located in Blackboard under Course Information in the folder titled Assignments Outside MML. They are also located in the Units folders. These will require that you type the answers in Word and send me the document as an attachment to a Blackboard message.

Discussions: There will be 2 discussion topics throughout the semester that are located in Blackboard and will count as homework grades. You can get to these from the Discussions link or from the Units folders. You will have to make one new post, including all the required information, and at least one reply for each discussion. As long as you do so, you will receive a 100. I will also create question and answer discussions for each chapter. If you have any questions that you want to post to the entire class, you may do so here.

Quizzes: Quizzes will be given in MML. You may submit quizzes two times, and the highest of the two grades will be counted. When you open a quiz, you will have 80 minutes to complete it unless you open a quiz less than 80 minutes before the deadline. For example, if you open a quiz 10 minutes before the deadline, then you only have 10 minutes to complete the quiz. You may use your textbook, homework, and notes. You will be allowed to review quizzes immediately after submitting them.

Tests: Tests will be given in MML and may be submitted only once. Tests will open one week prior to their due dates. When you open a test, you will have two hours to complete it unless you open a test less than two hours before the deadline. You may use a hard copy of the textbook, problems that you have written down from homework or quizzes, and notes, but you will not be able to access assignments or the book in MyMathLab during the test. You will be allowed to review tests immediately after submitting them.

Lesson Plan: The specific instructions for the lesson plan will be posted in Blackboard in the Assignments Outside MML folder. You will write a detailed lesson plan which covers objectives from the math Texas Essential Knowledge and Skills (TEKS) for a K – 8 class.

Final Exam: The final exam is comprehensive. It will cover all the sections for which homework was assigned. There are no exemptions from the final exam. The final will be given in MyMathLab and will follow the same rules as the other tests. You will have 2.5 hours to complete the final. Your grade for the course will be posted on CampusConnect after all students have completed the final.

Notes: There is a folder titled Notes under the Course Information link. These are notes that I would give on the board in a face-to-face class and should help you understand the material. You can also get to these notes in the units folders.

Suggestion for Learning the Material in this Course:
1. Look at the Assignment List to see what section is covered on the homework. For example, you will see that Homework 1 covers section 1-1.
2. Click the Units link in Blackboard and look under Unit 1.
3. Read the notes for section 1-1.
4. Read the recommended pages out of the textbook for this section.

5. Attempt the MML Homework 1 assignment. If you have trouble, you may use the "Question Help" option available for each MML homework problem.
6. If there are other assignments related to the 1-1 learning outcomes, complete those assignments.
7. Move to the section listed under Homework 2 and repeat this process.
8. When it comes time for quizzes or tests, you may study the homework by clicking on the assignments in the MML gradebook.

Now scroll back to the top and reread # 1 – 5!