



**Course Title:** **Technical Mathematics LAB**  
**Course #:** **113L-7**  
**Credit Hours:** **01**  
**Semester:** **Spring Semester 2022**  
**Cap:** **10**

**Faculty:** Mr. Jim Tohtsonie; BS & MA in Education  
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**Office:** Bldg A  
**TNP Campus Office Phone:** 928-656-3600  
**Office Hours (face-to-face):** 12:15pm to 1:15pm  
**Preferred Communication (email, or text):** 928-429-1378  
**Class Location and Meeting Times at Bldg A On** Thursdays  
**Meeting Hours and Online Hours:** 12:15pm to 1:15pm

**Required Materials:**

**Textbooks:** Elem Technical Mathematics; 12<sup>th</sup> Edition  
**Tools:** Notebooks; Binder; Grid/Graph paper; Calculators  
**Tools:** Calculator

**Laptop and Internet Access:** Every student is required to own a laptop and have internet access.

**Mission, Vision, and Philosophy**

**Mission:** Navajo Technical University honors Diné culture and language, while educating for the future.

**Vision:** Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.

**Philosophy:** Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íina (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

**Course Description**

**Mathematics Labs is encouraged in Nitsahakees (thinking)**

**Thinking through “Nitsahakees” is essential. All math problems takes full thinking of the process.**

Course Outcomes	Course Assessments
In Lab, you learn to apply mathematics	Pre-Assessment; Post Assessment
You learn to apply math in daily life activities,	Proctored Quizzes
Exercise and perform the mathematic approaches in their personal daily life	Tested in class/On-line tests
Apply the rules of mathematics outside of the classroom	Homework Assignments

Students will get caught up	Mid-term
Students will complete all assignments	Final Exam
	Participation
	Student Portfolio

### Connections to Program Assessment (Course-Embedded Measures)

#### Math LAB Course Activities:

Week #	Date 01/18	Instructions begin		
		Lab Lessons and Activities.	LAB Activities/Assignments	LAB Assessments
#01 Thursday	01/20	WELCOME; Go over COURSE & SYLLABUS What is Math LAB? Purpose? Discuss Ch 01	Discuss ways you use some of samples of lessons, at home?	Discussion of Assignments, given during the regular class
#01 Thursday Continue With Chapter 01		Get started with LAB Introduction: You can ask what you had trouble understanding You can explore how equations do work. Evaluate Formulas Find the Prime factorization of whole numbers	a) Adding/subtracting Whole Numbers Using Order of Operations with whole numbers b) Multiplying or dividing using Order of Operations with whole numbers	Learning how to solve problems by adding, subtracting Multiplying Or dividing. Learn how to apply the rules for Order of Operations.
Wk #02	01/27 Discuss How Important FRACTIONS can be in our daily life.	Name where fractions are used? How are fractions added, or even subtracted? Adding Fractions a) Adding fractions with the same denominators b) Adding fractions with different denominators	Measurement: In Home Construction, fractions are used to measure. Find the lengths of sides Find the Area of an area	Assess students on how they (a)figure the total lengths of perimeter. Take note on how they add fractions (b) how an Area will be calculated
#03 Thursday	02/03	Review of operations with decimal, fractions and percent;  Lesson: pg 55; Changing a common fraction to a Decimal Lesson; pg62; Rounding decimals to a particular place value	Show how decimals, fractions, and Percent are interchangeable EX $\frac{3}{4} = 0.75 = 75\%$ , not in this order but any order. EX $0.75 = 75\% = \frac{3}{4}$	You can work on your assignments Update Portfolio  Focus on multiplying and dividing fractions  Explain on how go about

		Lesson: pgs 64-65; Mult & Div of Decimal Fraction Lesson: Changing Decimal to a Percent; pg 73 Changing a fraction to percent, pg73 Changing a % to a fraction, pg74 Changing a % that contains a mixed number to a fraction; pg 75		<p>multiplying or dividing fractions Remember fractions have to be put in its lowest terms</p> <p>EX 12/20= Div by GCF 4= 3/5</p>
#04 Thursday	02/10	<p><b>Chapter 02:</b>  <b>"Signed Numbers and power of 10" LESSONS;</b>  <b>01)Lesson:</b> "Addition of Signed Numbers", pg 101  <b>02)Lesson:</b> "Subtraction of Signed Numbers", 105  <b>03)Lesson:</b> "Multiplication and Division of signed Numbers", 107</p>	<p>Students can work on their ASSIGNMENTS</p> <p>Ask for HELP if needed, or refer to your textbook</p>	<p>Show how you have arrived at your final answer. What are the steps you have used to get to the final answer?</p> <p>Portfolio check</p>
#05 Thursday	<b>02/17</b>	CHAPTER 02: Power of 10 Lessons, pg 114-116; Go over each example; Do Ex 2.5, odd numbers; items 01-29	<b>Students</b> can work on their assigned pages	<b>Always show your work.</b>
#06 Thursday	02/24	<p>CHAPTER 05: INTRO to Algebra</p> <p><b>Lesson:</b> Fundamental Operations, pgs 200-202</p> <p><b>Lesson:</b> Simplifying Algebraic Expressions, pgs 202- 205</p> <p><b>Lesson:</b> Adding and subtracting of polynomials, pgs 206-208</p>	<p>Understand the KEY: Make sure you understand the fundamentals of algebraic operations</p> <p>REVIEW for Midterm EXAM</p>	<p>Show solutions as do the given assignments</p> <p><math>3x + x = 4x</math></p> <p>Show that <math>(x + x + x) + x = x + x + x + x = 4x</math></p> <p>Apply the same procedure as you simplify expressions</p>

#07 Thursday	03/03	<p><b>Chapter 05: Continue</b>, an Introduction to ALGEBRA LESSONS, at <u>HOME</u>:</p> <p>04)Lesson: Multiplication of Monomials, pgs 209-211</p> <p>05)Lesson: Multiplication of Polynomials, pgs 211-213</p> <p>06)Lesson: Division of Polynomials, pgs 215-217</p>	How do you multiply monomials?	<p>If so go step by step as you apply the rules.</p> <p>Do likewise with division of polynomials</p> <p>Portfolio check</p>
#08 Thursday	03/10	<p><b>Oct 11-15 Midterm Exams</b></p> <p><b>Introduce:</b> <b>CHAPTER 06; EQUATIONS AND FORMULAS, PG 221</b></p> <p><b>01)EQUATIONS:</b> Go over pgs 222 - 226; Discuss each example; 4 Basic Rules Used to Solve Equations. Do with students in class, Teacher picked items and student picked items on pg 226 at EXERCISES 6.1</p> <p><b>02)Lesson:</b> EQUATIONS with variables in Both Members, pg 226</p> <p><b>03)Lesson:</b> Equations with Parentheses, pg 228</p> <p><b>04)Lesson:</b> Equations with Fractions, pg 230</p>	<p>Take Exam</p> <p>Assign: In an equation you solve for a variable And with formulas, you in put the values of given variables.</p> $3x + 3 = 18$ $\underline{\quad -3 \quad -3}$ $\frac{3x}{3} = \frac{15}{3}$ $x=5$	<p>Assess by testing</p> <p>If <math>x = 5</math>, find the solution to <math>3x + 3 = 18</math></p> <p>Insert 5 or <math>x</math>, <math>3(5) + 3=18</math> <math>15 + 3 = 18</math> <math>18=18</math></p>
#09 Thursday	03/14 to 03/18	<p><b>Assign to students to be studied at HOME: READ CHAPTER 08; GRAPHING LINEAR EQUATIONS; PG 277</b></p> <p><b>HOME Assignment:</b> Students would need lined Graph Paper, or lined Grid paper. Then, read &amp; discuss each of the 6 given Examples; Do examples on</p>	<p><b>Assignment at Home:</b> Using Graph Paper, find the values of <math>x</math> and <math>y</math>, and graph the coordinates on grid. When points on the grid are connected, they should form a straight line, which is linear.</p>	<p>Show or demonstrate how your graph <math>(x,y)</math> Connect the points, and a straight line is formed</p> <p>Update Portfolio</p>
#10 Thursday	<p>SPRING BREAK</p> <p>NO MATH CLASS THIS THURSDAY</p>			

		the board students have questions on. <b>01) Lesson: Linear Equations with Two Variables</b>  Continuation with Chapter 08		WE WILL review and cover what you had studied and done at HOME during the <b>SPRING BREAK</b>
		Continued lessons with <b>CHAPTER 08</b>	Continue with the above activity	Continue with the above activity
#11 Thursday	03/31	<b>CHAPTER 09: SYSTEMS OF LINEAR EQUATIONS; PAGE 304</b> 01) Lesson: <b>Solving Pairs of Linear Equations by Graphing</b> ; Pg 305; <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 4 given Examples; Explain examples on the board students have questions on., for simplification / clarification	What is the idea here? Explain in your own words.  You would graph the given linear equations  They ALL should form straight lines	How do these linear lines compare? Do they form parallel lines? Intersecting lines? The lines are the same?
#12 Thursday	04/07	02) Continued Lessons: <b>Solving Pairs of Linear Equations by Addition</b> ; pg 310; There are 8 EXAMPLES shown and given for students to follow; Explain examples on the board, if need to;  03) Lesson: <b>Solving Pairs of Linear Equations by Substitution</b> ; Pg 316; Go over the given EXAMPLES, by using the Methods shown in the box at the top of pg 316, where the 5 steps are used.	Review: How are linear equations added? How do you add them?  Solving Pairs of Linear Equations by Substitution	Reviews needed: Show me how you add linear equations? There are MORE than one way to add them.  Solve by subtraction
#13 Thursday	04/14	DO some Catching Up Day in class, and at Home, at this time: Complete what needs to be caught up on; Turn in	Get caught up with assignments not turned in.	Get caught up with assignments not turned in.  Update Portfolio

		assignments that aren't turned in, or completed. Study for Final Exam. Questions can be answered at this time.		
#14 Thursday	04/21	Continue with Extra Help needed at this time. Work on Chapters that you still need to get help with	What are lessons, concepts, and assignments you need help with?	Portfolio Check
#15 Thursday	<b>04/28</b>	Study Chapter lessons that you still need help with. What do you still do NOT understand or need help with?	<b>Work on concepts you still need more help with?</b> Work on missing work and assignments	Focus on concepts you need the most help in, or with. Study these for Exam
#16 Thursday	05/05	Make sure ALL work is turned in at this time. Work on them if they're not all in. Start preparing for your Exam	Identify concepts you still need to study more. Get all your notes ready. Start preparing for your Exam	Start preparing for your Exam
#17 Thursday  May 09 through May 12 is the Final Exam Week	<b>05/12</b> <b>Final Exam is Today</b>	a) Final Exam: You will to use Your Notes, Textbook, and a calculator if need to. Look over your Exam. If there are Questions, ask at this time. Once we got started we can't talk. There is a lot of time to complete this exam. We got all afternoon.	Your exam is to be scored as soon as I can and get it back to you.	
		b) All documents need to be turned into the front office desk		
		c) Your Semester Grade will be turned in to the front desk		

### Grading Plan

Homework:	20%
Class Participation:	03%
Project(s):	20%
Quizzes:	10%
Mid-term:	20%
Final Exam:	20%
Portfolio:	07%

A = 100-90%  
B = 89-80%  
C = 79-70%  
D = 69-60%  
F = 59% or less

### **Grading Policy**

Students must do their own work. Cheating and plagiarism are strictly forbidden. Cheating includes (but is not limited to) plagiarism, submission of work that is not one's own, submission or use of falsified data, unauthorized access to exams or assignments, use of unauthorized material during an exam, or supplying or communicating unauthorized information for assignments or exams.

### **Participation**

Students are expected to attend and participate in all class activities. Points will be given to students who actively participate in class activities including guest speakers, field trips, laboratories, and all other classroom events.

### **Cell phone and headphone use**

Please turn cell phones off **before** coming to class. Cell phone courtesy is essential to quality classroom learning. Headphones must be removed before coming to class.

### **Attendance Policy**

Students are expected to attend all class sessions. If more than ten minutes late, students will be counted as absent. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of responsibility to complete all course work by required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**

### **Study Time Outside of Class for Face-to-Face Courses**

**For every credit hour in class, a student is expected to spend two hours outside of class studying course materials.**

### **Study Time for Hybrid or Blended Courses**

**For a hybrid or blended course of one credit hour, a student is expected to spend three hours per week studying course materials.**

### **Study Time for Online Courses**

**For an online course of one credit hour, a student is expected to spend four hours per week studying course materials.**

### **Academic Integrity**

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and

plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor. **The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited.**

### **Diné Philosophy of Education**

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Ílna and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

At NTU's Zuni Campus, the A:shiwí Philosophy of Education offers essential elements for helping students develop Indigenous and Western understandings. Yam de bena: dap haydoshna: akkyá hon detsemak a:wannikwa da: hon de:tsemak a:ts'umme. *Our language and ceremonies allow our people to maintain strength and knowledge.* A:shiwí core values of hon i:yyułashik'yanna:wa (respect), hon delank'oha:willa:wa (kindness and empathy), hon i:yyayumola:wa (honesty and trustworthiness), and hon kohoł lewuna:wediyahnan, wan hon kela i:tsemanna (think critically) are central to attaining strength and knowledge. They help learners develop positive self-identity, respect, kindness, and critical thinking skills to achieve life goals successfully.

### **Students with Disabilities**

Navajo Technical University is committed to serving all students in a non-discriminatory and accommodating manner. Any student who feels that she or he may need special accommodations should contact the Accommodations Office (<http://www.navajotech.edu/student-services#accomodations-services>) in accordance with the university's Disability Accommodations Policy (see [http://www.navajotech.edu/images/about/policiesDocs/Disability\\_ Exhibit-A\\_ 6-26-2018.pdf](http://www.navajotech.edu/images/about/policiesDocs/Disability_ Exhibit-A_ 6-26-2018.pdf)).

### **Email Address**

Students are required to use NTU's email address for all communications with faculty and staff.

**Final Exam Date: DEC 16, 2021; Thursday**