Navajo Technical University   http://navajotech.edu

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MTH 1220-OL College Algebra
4 Credit Hours • Spring 2022/On-line WebAssign

Faculty: Dr. Henry Fowler   **E-mail**: hfowler@navajotech.edu
                                             Phone: 928-209-5557

Office Hours: Monday 12:00 pm to 1:00 pm.
                 Tuesday 9:00 am to 12:00 pm &
                 Tuesday 4:00 pm to 5:00 pm
                 & By appointment
Preferred Communication: email
Class Location & Meeting Times:
        Black Board On-line/WebAssign

Required Materials:
Textbooks: College Algebra Concepts and Models, 10th Edition
                By Larson
                ISBN: 978-1-337-28229-1
                (See below, you will only need a Cengage Access Code)

                Web Assignment Cengage Access Code: (price may vary)
                Note: NTU transition to on-line order for the access code.
                     navajotech.textbookx.com
                     https://navajotech.textbookx.com/institutional/index.php?action=browse#/books/3230285/

                Note: You will only need to purchase Cengage Access Code (your book will be online-digital)
                Cengage WebAssign Access Code
                ISBN: 9781337879590

                More information contact:
                Kami Morgan
                Email: kami.morgan@navajotech.edu
                Telephone: 505-387-7497

Tools: Scientific Calculator/Graph calculator

Laptop information:

Financial Aid Office (Crownpoint)
505-387-7442 or 505-387-7361
Chinle Financial Aid Office
928-882-3137
jyazzie@navajotech.edu

Laptop and Hotspot rental:
Crownpoint
Email: odescheny@navajotech.edu
Phone: 505.387.7363 / 505.786.4208
Email: its@navajotech.edu

Donovan Sam
Email: dsam@navajotech.edu (Chinle Campus)

University Mission Statement

Navajo Technical University's mission is to provide University readiness programs, certificates, associate, baccalaureate, and graduate degrees. Students, faculty, and staff will provide value to the Diné community through research, community engagement, service learning, and activities designed to foster cultural and environmental preservation and sustainable economic development. The University is committed to a high quality, student-oriented, hands-on learning environment based on the Diné cultural principles: *Nitsáhákees, Nahat'á, Iiná, Sii Hasin.*

Course Description

The study of equations, functions and graphs, reviewing linear and quadratic functions, and concentrating on polynomial, rational, exponential and logarithmic functions. Emphasizes algebraic problem-solving skills and graphical representation of functions.

Learning Outcomes

Students will build on their knowledge of polynomial, rational, absolute value, radical, exponential and logarithm functions in the following contexts:

1. Use function notation; perform function arithmetic, including composition; find inverse functions.
2. Identify functions and their transformations given in algebraic, graphical, numerical, and verbal representations, and explain the connections between these representations.
3. Graph and interpret key feature of functions, e.g., intercepts, leading term, end behavior, asymptotes.
4. Solve equations algebraically to answer questions about graphs and use graphs to estimate solutions to equations.
5. Solve contextual problems by identifying the appropriate type of function given the context and creating a formula based on the information given.
6. Communicate mathematical information using proper notation and verbal explanations.

Sạ'ah Naagháí Bik'eh Hózhóọn
Nitsáhákees
1.   Expectations ("bik'eh" means according to it)
a.   K'é: work together and assist each other
b.   K'éí: know your environment and surrounding
c.   Hózhọ́: nurture your wellness and mind
d.   Kọ': flexible and adapt
e.   Hooghan: **grow and mature (Sạ'ah)**

Nahat'á
2.   Communication (ahi[dahane')
a.   Navajo Technical University webpage
b.   Emails
c.   Phone, text and message
d.   Regularly/continuously (**Naagháí**) check your email; "**hí**" refers to the idea of sequence and "**náá**" refers to repetition
Iiná
3.   Promote vigilant
a.   Yéego hada'iinołní
b.   Sin dóó t'eesh bee nidakai

Sihasin
4.   Achieve/assure
K'é: work together and assist each other
K'éí: know your environment and surrounding
Hózhọ́: nurture your wellness and mind

Specific objectives for students: It is essential for students to attend all classes.
COURSE REQUIREMENT:
1. An access to a reliable Internet.
2. A laptop or computer is required.
3. All assignments and exams are **on-line using Cengage WebAssign.**
4. Work on assigned homework assignments using **WebAssign**.
5. Take all scheduled quizzes/exams.
6. Complete all homework assignments by due dates.
7. Check NTU email regularly
8. Self-motivated to be successful in this class.
9. It is important that students are actively engaged in class activities. Questions are welcome in the classroom. Students are welcome to schedule an appointment with the instructor for extra help.
10. T' áá Hó Ájí t'éego Yá'át'éego iiná ájiiłịịh

TEACHING STRATEGIES AND TECHNIQUES:
The following teaching methods and instructional approaches will take place throughout the semester.
1. Use Cengage WebAssign to work on the course assignments, quizzes and exams.

2. Use Cengage WebAssign resources such as on-line tutoring and video clips
3. Use **You-Tube** math resources
4. Google math topics that you need additional help with.
5. Encourage a peer study group session. Design your own peer study group to study.

Learning Platform:
This class will use the WebAssign/Black Board learning platform to deliver instruction. And uses Cengage WebAssign for the class assignments and exams.

Assessments:
Pre/post Survey. At the beginning and at the end of the semester, students will complete an attitudinal survey to ascertain growth in competence and confidence in mathematics. The survey will help identify opportunities to improve the course in the future. **Classroom Assessments.** Classroom Assessments are ungraded activities conducted in class. They provide feedback on whether or not students understand course material so that adjustments can be made before the end of the term. They are ungraded.
1. **Assignments.** Every week students will have assignments. Assignments are due on Saturday at 11:59 pm.
2. **Quizzes.** At the end of each chapter there will be a quiz. A total of six quizzes will take place by the end of the semester.
3. **Exams.** There will be a final and mid-term exam.
4. **Projects.** Each student will be responsible for two projects that involve a real-life problem solved by using algebra. Each project will be assessed using Skills Rubric that derives from the New Mexico Higher Education Department – in Quantitative Reasoning. Student learning data from the second of the project assignments will be used to improve MTH 121 and the University's General Education Program as a whole. The NMHED Skills Rubric is provided below.

Course Activities
Specific details regarding the sequencing of quizzes and projects are forthcoming.

Date	Wk	Chapter & Topic	Assignments	Assessments
January 18	1	1.1 Graphs of Equations Table of Values https://www.youtube.com/watch?v=-u55GD_sGLA X and Y intercepts from a graph https://www.youtube.com/watch?v=SP6VjMIivW0 https://www.youtube.com/watch?v=IJh-zDI4pg0 Tests for Symmetry https://www.youtube.com/watch?v=Z0tNDfhrOkI	Syllabus Sign-up Cengage WebAssign	

		https://www.youtube.com/watch?v=pq4hHj7eyHU Circle https://www.youtube.com/watch?v=u_39J-syjB0 https://www.youtube.com/watch?v=thDrJvWNI8M https://www.youtube.com/watch?v=nm8YNHz1YHE		
January 24	2	1.2 Linear Equations in One Variable Solving Linear Equations https://www.youtube.com/watch?v=GmMX3-nTWbE Solving Rational Equations https://www.youtube.com/watch?v=1fR_9ke5-n8 Intercepts https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/8th-x-and-y-intercepts/v/x-and-y-intercepts-2 1.4 Quadratic Equations/Applications https://www.youtube.com/watch?v=2ZzuZvz33X0 https://www.khanacademy.org/math/algebra/x2f8bb11595b61c86:quadratic-functions-equations/x2f8bb11595b61c86:quadratics-solve-factoring/a/solving-quadratic-equations-by-factoring	WebAssign	
January 31	3	1.5 Complex Numbers Add and subtract complex numbers https://www.youtube.com/watch?v=qNNX79cnFyQ Multiply complex numbers https://www.youtube.com/watch?v=MzCS_8Rzja8 Complex numbers https://www.youtube.com/watch?v=OzU_1EwaF9Y	WebAssign	Quiz 1

February 7	4	1.6 Other Types of Equations https://www.youtube.com/watch?v=PHc8B6MuE8s https://www.youtube.com/watch?v=qeBy-hTF8WEw Radical equations https://www.youtube.com/watch?v=tT0Zwsto6AQ		
February 14	5	1.7 Linear Inequalities in One Variable 1.8 Other Types of Inequalities videos 1.7 inequalities https://www.youtube.com/watch?v=tm49BYGw_Sg https://www.youtube.com/watch?v=U2edK2FsJzo absolute value https://www.youtube.com/watch?v=3LN0IDooaIE videos 1.8 Polynomials https://www.youtube.com/watch?v=Fd5ys4PQ-aM https://www.youtube.com/watch?v=AS-jmUWqqf5k	WebAssign	Quiz 2
February 21	6	2.1 Linear Equations in Two Variables 2.2 Functions Use youtube to understand the problems YouTube has a search function – search linear equation in two variables to see videos. Similar search functions.	WebAssign	Quiz 3
February 28	7	2.3 Analyzing Graphs of Functions 2.4 A Library of Parent Functions	WebAssign	
March 7-11 (midterm week) March 8 Midterm Exam	8	MIDTERM EXAM Week Mid-Term Exam March 8	WebAssign	
March 14-18		Spring Break		

Date	Week	Topics		Assessment
March 21	9	2.5 Transformations of Functions 2.6 Combinations of Functions: Composite	WebAssign	Quiz 4
March 28	10	2.7 Inverse Functions 3.1 Quadratic Functions and Models	WebAssign	Project #1
April 4	11	3.2 Polynomial Functions of Higher Degree 3.3 Polynomial and Synthetic Division	WebAssign	Quiz 5
April 11	12	3.4 Zeros of Polynomial Functions 3.5 Mathematical Modeling and Variation	WebAssign	
April 18	13	4.1 Rational Functions and Asymptotes 4.2 Graphs of Rational Functions	WebAssign	Project #2 Quiz 6
April 25	14	5.1 Exponential Functions and Their Graphs 5.2 Logarithmic Functions and Their Graphs	WebAssign	
May 2	15	5.3 Properties of Logarithms 5.4 Exponential and Logarithmic Equations	WebAssign	
May 9-12 (Final Exam Week)	16	Final Exam -Online WebAssign May 10 Final Exam Due Tuesday, May 10	WebAssign	Final exam Post-Survey

The Math 1220 will be delivered as on-line class and class assignments are on the Web assign Cengage. Your students must use the class key listed below to enroll in your class.
ntc 3418 8209

WebAssign: Create an account
https://www.webassign.net/

Any issue with WebAssign contact Student Support:
https://webassign.com/support/student-support/

Grading Plan

Assignments	20%	A = 100-90%
Quizzes	20%	B = 89-80%
Project(s)	15%	C = 79-70%
Mid-term exam	15%	D = 69-60%
Final exam	20%	F = < 60%
Class participation	10%	

Grading Policy
Student accountability is one key component to success. In order to achieve desired results in learning concepts in Intermediate Algebra, the students are encouraged to practice solving problems to reinforce the lesson. Furthermore, class participation will allow the students to share their ideas through their different learning styles. Cheating and plagiarism are strictly forbidden of which include copying other student's work, lifting text from copyrighted published work, and other similar forms of infringement.
Class Expectations

1. Class starts on time and ends on time.
2. Participate in class activities.
3. In case of emergency notify the teacher.
4. Be respectful at all times.
5. Visit the academic calendar:
http://www.navajotech.edu/images/academics/calendar/ntuAcademicCalendar.pdf

Participation
Students are expected to attend and participate in all class activities and scheduled class time.
Attendance Policy
The students are required to follow the course schedule and attend all the classes. Missing over four classes may result an F grade or lower your grade by 15 percent.
Late Assignments or Work
Assignments due date is on Saturdays at 11:59 pm. Submitting work beyond the date will incur a grade penalty. Late work is deducted 10 percent a day for lateness.
Quiz / Exams:
See syllabus when quizzes are given and exams. All quizzes and exams are on-line using the Cengage WebAssign.

Study Time Outside of Class for Face-to-Face Courses
For every credit hour spent in class, a student is expected to spend two hours outside of class studying the 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 the 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 the 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 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, Nahat'á, Iiná and Sih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

Students with Disabilities
The Navajo Technical University and the Math Department are committed to serving all enrolled students in a non-discriminatory and accommodating manner. Any student who feels he/she may need an accommodation based on the impact of disability or needs special accommodations should inform NTU in accordance with the procedures of the subsection entitled "Students with Disabilities" under Section 7: Student Support Programs, NTU Student Handbook.

Skyhawk Email: All students are required to use Skyhawk email as the official communication resource within NTU. This is a federal requirement and policy.
Contact Information:
Donovan Sam
Email: dsam@navajotech.edu
Or
Email: odescheny@navajotech.edu
Phone: 505.387.7363 / 505.786.4208
Email: its@navajotech.edu

T'áá hwó' ají t'éego.

Skills Rubric

QUANTITATIVE REASONING RUBRIC

OUTCOME	SCALE			SUBTOTAL
	Emerging (1 pts)	**Developing (3 pts)**	**Proficient (5 pts)**	
a. Express quantitative information	Students explain the meaning of graphics, numbers, or algebraic symbols within a given context.	Emerging skill descriptions plus: Students translate mathematical graphics and symbolism into written or oral language; translate written or oral language into mathematical symbols and graphics.	Developing skill descriptions plus: Students integrate written and symbolic mathematical constructs in describing particular contexts.	
b. Evaluate a quantitative argument	Students summarize quantitative arguments presented by others.	Emerging skill descriptions plus: Students differentiate and describe the parts of a quantitative argument presented by others; compare the conclusions of a quantitative argument with conclusions from other reliable sources.	Developing skill descriptions plus: Using appropriate techniques of mathematical proof or statistical analysis, students evaluate each component of a quantitative argument for mathematical validity and demonstrate whether an overall quantitative argument is valid, invalid, or questionable.	
c. Interpret results to solve a problem	Students identify, describe, and classify quantitative information needed to address contextual problems.	Emerging skill descriptions plus: Students identify appropriate mathematical or statistical models to represent quantitative information in contextual problems; apply those models to generate numeric predictions.	Developing skill descriptions plus: Students assess the validity of numeric predictions and correct unreasonable findings; analyze and interpret results; use them in a quantitative argument to support a position or line of reasoning or solve a contextual problem.	
TOTAL/COMMENTS				