Course Prefix/Number/Title: MATH 103 College Algebra

Number of Credits: 4

Course Description: This course covers relations and functions, equations and inequalities, complex numbers; polynomial, rational, exponential and logarithmic functions and systems of equations.

Prerequisites: ASC 093 with a grade of C or higher or equivalent course, or appropriate Math Placement Test Score

Course Objectives: The student will be introduced to the topics above which require certain techniques for solutions. We will develop ideas and methods for applying these techniques leading to a solution or resolution of the question. During the course, the student will be exposed to the use and application of the graphing calculator in the appropriate areas.
Students will be able to do the following:

- Demonstrate an understanding of relations and functions.
- Work with equations and inequalities.
- Work with complex numbers.
- Work with rational and polynomial expressions.
- Will be successful in working with exponential and logarithmic functions.
- To solve systems of linear equations.
- Create and use matrices to solve systems of equations.

Instructor: Harmony Richman, M.Ed.

Office: McFarland 427C on the Valley City State University campus

Office Hours: Virtual office hours available via Blackboard Collaborative, Microsoft Teams, Zoom or Facetime (harmony.richman@vcsu.edu)

Phone: 701-200-3897 (cell)

Email: Harmony.Richman@vcsu.edu

Lecture/Lab Schedule: MWF 8:35 AM - 9:20 AM + 1 additional learning day on Thursday on your own as directed by the instructor.

Textbook(s): College Algebra π Edition; Sitz and Zeager. Full free PDF version.

Technology tools required: Internet access which is regular and dependable. Internet browser (Firefox or Google Chrome preference), Office 365, Adobe Acrobat Reading, Adobe Flash Player, ability to record audio and/or video, additional free web-based software.

Course Requirements: Students who are in the college classroom either face-to-face or online have made the conscious choice to be a part of the course. In this course, you are viewed as a participant

in the learning; hence there are expectations that come with the choice you made to take this course.

- You are expected to put, at a minimum, approximately 5 – 8 hours of preparation and study time per week into this course.
- Actively participate regularly in class discussions through consistent, punctual, prepared and interested attendance.
- Utilize MyOpenMath to support academic assessment work.
- Submit graded assignments by dates posted on the course calendar. On each assignment, you must show ALL YOUR WORK for full credit. If you do not show work, but simply state your answer, you will receive NO credit for the assignment. It is unfair to selectively grant extensions to some students and not others. Therefore, late assignments are not accepted. Addendums to this rule include medical and/or prior approval from the instructor. A zero will be given for any assignment not turned in by the deadline.
- During the course of the semester, if you are experiencing any problems (family difficulties, sick relatives, etc.) that are affecting your academic performance, you must inform me of such problems ASAP if you want me to take them into consideration. The sooner I know about a problem, the more understanding I will be. If you come to me during the last week of the semester, before grades are about to be assigned to discuss difficulties which have affected you throughout the term, you will find that I am not nearly as understanding and that I can do very little to help you with your grade.
- Read assignments as provided by instructor.
- Do ungraded, independent practice exercises.
- Submit work using PDF/JPEG within Blackboard, as needed.
- Complete graded quizzes/tests after each chapter(s).

Tentative Course Outline: See Table 1 Course Schedule below.

General Education Competency/Learning Outcome(s) OR CTE Competency/Department Learning Outcome(s):

Competency/Goal 3: Demonstrates the ability to solve a variety of mathematical problems

Learning Outcome 1: Utilizes mathematical skills to solve problems
Learning Outcome 2: Employs critical thinking skills to solve problems

Relationship to Campus Focus: Mathematics 103 emphasizes technology through the use of graphic calculators and nature through wildlife population modeling.

Classroom Policies:
1. Due dates for all assignments will be given throughout the duration of this course. Sufficient notice of due dates for assignments will be given, there is no reason why the assignments cannot be completed on time.
2. It is unfair to selectively grant extensions to some students and not others. Therefore, late assignments are not accepted. Addendums to this rule may include medical and/or prior approval from the instructor. A zero will be given for any assignment not turned in by the deadline.

3. Your final grade is determined by dividing the total points earned by the total points possible. Points will be awarded for thoughtful posts of discussion boards, selected practice activities, reflections, and written reports. There will be no quizzes or tests within the course as there are formal and informal assessments within your assignments that fully allows me to analyze your understanding of our topics weekly.
4. Grades will be calculated using the following criteria:

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

Student Email Policy:

Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student's campus-assigned email address will be the only one recognized by the Campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity:

According to the DCB Student Handbook, students are responsible for submitting their own work. Students who cooperate on oral or written examinations or work without authorization share the responsibility for violation of academic principles, and the students are subject to disciplinary action even when one of the students is not enrolled in the course where the violation occurred. The Code detailed in the Academic Honesty/Dishonesty section of the Student Handbook will serve as the guideline for cases where cheating, plagiarism or other academic improprieties have occurred.

Disabilities or Special Needs:

Students with disabilities or special needs (academic or otherwise) are encouraged to contact the instructor and Disability Support Services.

Title IX:

Dakota College at Bottineau (DCB) faculty are committed to helping create a safe learning environment for all students and for the College as a whole. Please be aware that all DCB employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment to the College Title IX Coordinator. This means that if a student tells a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the College's Title IX Coordinator. Students wishing to speak to a confidential employee who does not have this reporting responsibility can find a list of resources on the DCB Title IX webpage.

Table 1 Course Schedule

The Topics are subject to change based on learners, weather, and other components that are unable to be identified before the semester begins.

Week/Module/Topics	Topics, Readings, Assignments, Due Dates, Deadlines
1	Welcome 1.1 Sets of Real Numbers and the Cartesian Plane 1.2 Relations
2	1.3 Introduction to Functions 1.4 Function Notation 1.5 Function Arithmetic
3	1.6 Graphs of Functions 1.7 Transformations
4	Unit 1 Assesment 2.1 Linear Functions 2.2 Absolute Value Functions 2.3 Quadratice Functions
5	2.4 Inequalities with Absolute Value and Quadratic Functions 2.5 Regression Unit 2 Assessment
6	3.1 Graphs of Polynomials 3.2 The Factor Theorem and the Remainder Theorem 3.3 Real Zeros of Polynomials
7	3.4 Complex Zeros and the Fundamental Theorem of Algebra Unit 3 Assessment 4.1 Introduction to Rational Functions
8	4.2 Graphs of Rational Functions 4.3 Rational Inequalities and Applications Unit 4 Assessment
9	5.1 Function Composition 5.2 Inverse Functions 5.3 Other Algebraic Functions
10	Unit 5 Assessment 6.1 Indroduction to Exponential and Logarithmic Functions 6.2 Properties of Logarithms 6.3 Exponential Equations and Inequalites
11	6.4 Logarithmic Equations and Inequalities 6.5 Applications of Exponential Functions 6.5 Applications of Logarithmic Functions
12	Unit 6 Assessment 7.1 Intro to Conics Activity 7.2 Circles
13	7.3 Parabolas 7.4 Ellipses 7.5 Hyperbolas Unit 7 Assessment

14	8.1 Systems of Linear Equations: Gaussian Elimination
15	8.2 Systems of Linear Equations: Augmented Matrix 8.3 Matrix Arithmetic 8.4 Matrix Inverses 8.5 Determinants
16	8.6 Cramer's Rule 8.6 Partial Fraction Decomposition 8.7 Systems of Nonlinear Equations and Inequalties Unit 8 Assessment