

**CIS College Algebra SMSU
Willmar Senior High School
2022-2023 School Year**

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Help time: 7:15-8:00 am & 2:45-3:15 **email me for any questions or concerns**
Class time is a 90 minute block.

Course Description: Mathematics 110 – College Algebra – 3 credits

A study of the fundamental concepts of algebra. Topics include: equations and inequalities; polynomial, rational, exponential, and logarithmic functions and their graphs; and systems of linear and nonlinear equations.

Prerequisite:

1. A student must meet SMSU's CIS eligibility requirements
2. Also, student should have passed Algebra 3-Regular or Advanced
3. OR, with teacher approval have passed Algebra 2 with a B- or Higher

Text: College Algebra by Openstax, <https://openstax.org/details/books/college-algebra>

Homework: Openstax pdf

The following apps/technology will be used:

■ iPad ■ Schoology/Website ■ PDF Expert ■ Desmos Calculator ■ TI-84 Calculator
 ■ GrafNCalc83 app ■ Other apps may be introduced throughout the course

**Electronics (including cell phones) will be used for educational purposes only!!!

Learning Outcomes:

Upon completion of this course students will:

1. Have gained knowledge of the mathematical techniques essential to solving mathematical problems at the college level.
2. Have gained familiarity with correct mathematical reasoning techniques, proofs, and avoidance of fallacies.
3. Be able to apply mathematics to many areas of historical and contemporary interest, which may include economics, engineering, natural science and social science.

Curriculum Goal - Mathematical/Logical Reasoning:

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument (proof).
4. Apply higher-order problem solving and/or modeling strategies.

Tentative Semester Schedule:

Term 1

Weeks 1-2 Registration, Syllabus, Chapter 1

Weeks 3 - 5 Chapter 2

Weeks 6 - 8 Chapter 3

Weeks 9 Chapter 4

Content Areas:

1 Prerequisites

- 1.1 Real Numbers: Algebra Essentials
- 1.2 Exponents and Scientific Notation
- 1.3 Radicals and Rational Exponents
- 1.4 Polynomials
- 1.5 Factoring Polynomials
- 1.6 Rational Expressions

2 Equations and Inequalities

- 2.1 The Rectangular Coordinate Systems and Graphs
- 2.2 Linear Equations in One Variable
- 2.3 Models and Applications
- 2.4 Complex Numbers
- 2.5 Quadratic Equations
- 2.6 Other Types of Equations
- 2.7 Linear Inequalities and Absolute Value Inequalities

3 Functions

- 3.1 Functions and Function Notation
- 3.2 Domain and Range
- 3.3 Rates of Change and Behavior of Graphs
- 3.4 Composition of Functions
- 3.5 Transformation of Functions
- 3.6 Absolute Value Functions
- 3.7 Inverse Functions

4 Linear Functions

- 4.1 Linear Functions
- 4.2 Modeling with Linear Functions
- 4.3 Fitting Linear Models to Data

Term 2

Weeks 10 - 12 Chapter 5

Weeks 13 - 15 Chapter 6

Week 16 Chapter 7

Week 17 FINAL EXAM

Week 18 Chapter 9/8

5 Polynomial and Rational Functions

- 5.1 Quadratic Functions
- 5.2 Power Functions and Polynomial Functions
- 5.3 Graphs of Polynomial Functions
- 5.4 Dividing Polynomials
- 5.5 Zeros of Polynomial Functions
- 5.6 Rational Functions
- 5.7 Inverses and Radical Functions
- 5.8 Modeling Using Variation

6 Exponential and Logarithmic Functions

- 6.1 Exponential Functions
- 6.2 Graphs of Exponential Functions
- 6.3 Logarithmic Functions
- 6.4 Graphs of Logarithmic Functions
- 6.5 Logarithmic Properties
- 6.6 Exponential and Logarithmic Equations
- 6.7 Exponential and Logarithmic Models
- 6.8 Fitting Exponential Models to Data

7 Systems of Equations and Inequalities

- 7.1 Systems of Linear Equations: Two Variables
- 7.2 Systems of Linear Equations: Three Variables
- 7.3 Systems of Nonlinear Equations and Inequalities: Two Variables

9 Sequences, Probability, and Counting Theory

- 9.1 Sequences and Their Notations
- 9.2 Arithmetic Sequences
- 9.3 Geometric Sequences
- 9.4 Series and Their Notations

8 Analytic Geometry (Possibly)

- 8.1 The Ellipse
- 8.2 The Hyperbola
- 8.3 The Parabol

Classroom

Be respectful of yourself, of others, and of my classroom!

This is a learning environment.

- Do not do anything to affect this!
 - No cell phones/iPod/other listening devices

Ipads are part of the learning environment

- No misuse of the iPad will be tolerated

Games can be a part of the learning when you have all work completed

Formative Homework 15%

- ❖ Completed daily for possible 5 points
 - After chapter is completed 0
- ❖ Get help!
- ❖ Formative daily lesson Schoology quizzes will be completed along with your homework
 - Full credit up to scheduled chapter test.
 - Half credit after scheduled chapter test
- ❖ Can listen to music when you are working individually
- ❖ Extra credit will be provided periodically for 1-2 points

Summative Tests & Final 85%

- ✓ Summative tests per chapter 90 min
 - Will be on Schoology with a paper copy work turned in
 - Work has to be shown for full credit
 - Points will be deducted if no work shown
 - Do not miss!
- ✓ 1 retake per Term for full credit.
- ✓ Or, fix mistakes for partial credit if time allows during the block.

Term Final

- Will be given during the second term of the course. The final exam will be cumulative and given during the final exam period for this class.
- Covers main points of the term from each chapter completed.
- Will be a paper/pencil test – No iPad, unless, distance learning. Only a calculator provided by the teacher, unless, distance learning.
- No retakes allowed.

Grading Scale:	93-100	A	<i>SMSU A+ 97-100</i>
	90-93	A-	
	87-90	B+	
	83-87	B	
	80-83	B-	
	77-80	C+	
	73-77	C	
	70-73	C-	
	67-70	D+	
	63-67	D	
	60-63	D-	
	Below 60	F	

Assignments/Attendance:

Students should expect homework assignments to be assigned on a near daily basis and are expected to turn in work by the assigned dates. Most assignments will be due within 1-2 days. Assignments will be accepted for credit up until the Chapter Test. After the Chapter Test day, no credit will be given for late assignments. If an assignment is turned in without adequate work included, a zero will be given, and the assignment will be given back in order to be properly finished for credit. It is YOUR responsibility to communicate with me and finish work from days you are absent.

If you have an unexcused absence on the day of a test you will receive a zero for that test. By school policy, unexcused absences or three unexcused tardies are made up with 1 hour of detention. Please communicate with Mr. Haugen on options to serve your detention hours. You will NOT receive credit for the class unless all detention hours are served.

HARASSMENT AND VIOLENCE POLICY

****Follow the School policy/hand book:** <https://www.willmar.k12.mn.us/domain/370>

College Now Statement:

College Now is SMSU's concurrent enrollment program. Concurrent enrollment allows qualified high school students to earn college credit in their high school, during their regular school day. College Now classes are taught by qualified high school teachers and are supervised by SMSU faculty members. These classes are actual SMSU courses where students earn actual SMSU credit. There is no cost to the student for these courses, providing an outstanding opportunity for students to earn college credit and jumpstarting their college careers without incurring additional debt.

Academic Integrity Policy:

Academic Honesty:

The aim of the academic honesty policy is to maintain the academic integrity of Southwest Minnesota State University and promote an intellectual climate of honesty and integrity. To maintain an environment of academic integrity all students are required to accept personal responsibility for their work at Southwest Minnesota State University. Any offense against the academic honesty policy compromises the educational integrity of Southwest Minnesota State University and will be considered a grave offense. Offenses against academic honesty are acts which unjustly advance one's academic standing at Southwest Minnesota State University and include knowingly permitting or knowingly aiding a person in an offense against the academic policy.

Forms of Academic Dishonesty: In line with the National Association of Student Personnel Administrator (NASPA), Southwest Minnesota State University (SMSU) academic dishonesty will include the following forms:

A. **Plagiarism:** Presenting someone else's work or ideas as your own. Plagiarism will include, but not be limited to:

1. Submitting someone else's work or ideas as your own, including but not limited to homework assignments, term papers, research reports, lab reports, group projects, artistic works, tests, or class presentations.
2. Submitting someone else's electronic work as your own, including but not limited to video clips, audio clips, electronic files, electronic programs, and any other copied electronic page, document, article, review, etc.
3. Submitting someone else's work as your own with minor alterations. Paraphrasing without proper citation is also plagiarism.
4. Submitting someone else's work without appropriate use of quotations, paraphrases, footnotes, or references.

B. **Cheating:** Using or attempting to use unauthorized materials, information or study guide. Cheating will include, but not be limited to:

1. Copying from someone else during any type of examination.
2. Communicating answers to an exam with other students and this includes allowing someone else to copy your own exam during a test.
3. Using any material not permitted by the instructor for an examination.
4. Requesting, acquiring, possessing, or providing someone else with an examination or portion of an examination without consent of the instructor.

C. Impermissible Collaboration: Collaborating on any academic exercise, work, speech, test or examination unless expressly authorized by the faculty member. It is the obligation of the student to know whether collaboration is permitted.

Any student found to have committed or have attempted to commit the above misconduct is subject to disciplinary sanctions:

Disciplinary Sanctions: In cases where a faculty member finds that a student has committed any act of academic dishonesty, the faculty member may, in the exercise of his or her professional judgment, impose an academic sanction as severe as giving the student a zero on the assignment or in more severe cases a failing grade in the course. The faculty member will discuss this with the student before imposing the sanction. The student has the right to appeal to a higher administrative person who is responsible to consider such appeals.”

Student Signature: _____

Parent/Guardian Signature: _____