**Math 135 – Pre-Calculus - College Now Syllabus**

**SMSU Course Title: PreCalculus**

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**High School: Wabasso HS**

**High School Teacher: Mrs. Traci Bernardy Email:** [Traci.Bernardy@isd640.org](mailto:Traci.Bernardy@isd640.org)

**Semester and Year: 2024-2025 School Year**

**Time/Day: Period 6 (1:16 – 2:09 pm)**

Text: *Precalculus, Ninth Edition,* Ron Larson ©2014, Brooks/Cole Cengage Learning

Course Description:

A detailed study of the mathematics needed for calculus. Concepts are presented and explored from symbolic, graphical, and numerical perspectives. Basic concepts covered include polynomial, rational, exponential, logarithmic, and trigonometric functions, complex numbers, linear systems, numerical patterns, sequences and series. The required preparation is MATH 110 or three years of high school mathematics, including two years of algebra.

Learning Outcomes:

Upon completion of this course students will:

1. Be able to set up and solve algebraic, logarithmic, exponential, and trigonometric equations.
2. Be able to graph algebraic, logarithmic, exponential and trigonometric functions and interpret said graphs.
3. Be able to prove algebraic and trigonometric identities and read said proofs.
4. Be able to solve linear and nonlinear systems.
5. Be able to read, understand and work with sequences and series.

Minnesota Transfer Curriculum Goal 04 - 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.

Prerequisites:

In order to be ready for the content of this course, students should have previously covered the following topics.

* 1. Real Numbers
  2. Exponents and Radicals
  3. Polynomials and Factoring
  4. Rational Expressions
  5. Coordinate Systems

Major Content Areas:

1. Equations and Inequalities
   1. Linear Equations, Graphs, and Applications
   2. Quadratic Equations and Applications
   3. Complex Numbers
   4. Other Types of Equations
   5. Inequalities
2. Functions and Graphs
   1. Functions
   2. Graphs of Functions
   3. Parent Functions
   4. Transformation of Functions
   5. Composite and Inverse Functions
3. Polynomial Functions
   1. Quadratic Functions
   2. Higher Order Polynomial Functions
   3. Division of Polynomials
   4. Zeros of Polynomials
   5. Applications
4. Rational Functions
   1. Rational Functions and Asymptotes
   2. Graphs of Rational Functions

1. Exponential and Logarithmic Functions
   1. Exponential Functions and Graphs
   2. Logarithmic Functions and Graphs
   3. Properties of Logarithms
   4. Exponential and Logarithmic Equations and Applications
2. Trigonometry
   1. Degree and Radian Measures
   2. Definitions of the Trigonometric Functions
   3. Standard Trigonometric Identities (Recognition, Use, and Proof)
   4. Graphs of Trigonometric Functions
   5. Inverse Trigonometric Functions
   6. Law of Sines
   7. Law of Cosines
   8. Heron’s Area Formula
   9. Applications of Trigonometry to Real-Life Problems
3. Systems of Equations and Matrices
   1. Linear and Nonlinear Systems of Equations
   2. Two Variable Linear Systems
   3. Multivariable Linear Systems
   4. Applications of Systems to Real-Life Problems
4. Sequences and Series
   1. Sequence and Series Notation
   2. Factorials
   3. Summations
   4. Arithmetic and Geometric Sequences
   5. Infinite Sums
5. Additional Topics if Time Permits
   1. Matrices
   2. Solving Linear Systems using Matrices
   3. Elementary Matrix Row Operations
   4. Gaussian and Gauss-Jordan Elimination
   5. Determinants and Cramer’s Rule
   6. Inverses of Matrices
   7. Vectors
   8. Polar Coordinates
   9. Conic Sections

**Attendance Policy:**

Missing more than 15 minutes of any class period is considered an absence. A student will not receive credit for any class in which the absences reach 13 per semester. All absences will be counted except for those that result from participation in school-authorized activities, or death in the immediate family.

**Grades:** Your grade will be determined by 4 major factors:

*Chapter Test scores.* You may retake any test throughout the grading period, within 2 weeks of the original test date. If you would like to take advantage of this option, you need to contact me to set up a time outside of class to do so. If your score improves, your recorded score will be the average of the retake and original tests. If your score does not improve, you will receive your original score. Your grade cannot go down by retaking a test.

*Homework*. Homework may be collected. At that time, the student is to turn in the 1-2 assignments which are requested. Assignments will be awarded points based on completion – including work shown – on a pre-set scale from 5 to 0 points being awarded. Students are responsible for organizing and keeping their materials to be able to locate it when they are requested. Graded assignments (which are graded for accuracy and completion) may be assigned. The student will be notified when the assignment is given that this will be “graded.” Any late homework, graded or other, will be penalized 10% per day. They will no longer be accepted after 5 days. Late homework is any paper that is not handed in when requested – even if it is handed in later that class period.

*Quizzes.* Short assessments on 1 or 2 covered sections. Most can be retaken the same as a test.

*Final Test.* A cumulative final test may be given at the end of each quarter. The score will account for approximately10% of the grade.

SMSU College Now Grade Scale

100 – 95% A

94 – 90% A-

89 – 86% B+

85 – 83% B

82 – 80% B-

79 – 76% C+

75 – 73% C

72 – 70% C-

69 – 66% D+

65 – 63% D

62 – 60% D-

59 & below F

Final grades will be calculated by total points received out of total points possible, but will be at the minimum the following percentages:

Homework, attendance, and participation ≤ 15 %

Quizzes, tests, and final exam ≥ 85 %

*Final Exam*: The final exam will be cumulative and given during our class period, during the week of May 19-21, 2025.

**Liberal Education Student Learning Outcomes:**

*Upon completion of the Liberal Education Program at SMSU, students will:*

* Understand the techniques and habits of thought in a variety of liberal arts disciplines, having attained an adequate foundation of knowledge in those disciplines.
* Communicate effectively.
* Be creative thinkers able to identify, formulate, and solve problems using interdisciplinary perspectives.
* Be critical thinkers who evaluate information wisely and examine how assumptions and positions are shaped.
* Understand both physical and social aspects of the world and their place in it.
* Embrace the similarities among peoples and appreciate the diversity that enriches the human experience.
* Analyze moral judgments and engage in moral discourse.
* Practice responsible citizenship in their local and global communities.
* Continue life-long learning.
* Integrate mind, body, and spirit, the essential elements of a flourishing life.

**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 jumpstart their college careers without incurring additional debt.

**IEP/504 Accommodations Policy:**

SMSU does provide services for students with disabilities and IEPs at the high school.  However, accommodations may vary from what is available at the high school, as we will not provide accommodations in the IEP that are considered a fundamental alteration at the college or university level.

At the university level, a 504 plan or IEP are tools to assist Accessibility Services and students in determining reasonable and appropriate accommodations. If a student taking a College Now course in their high school would like consideration of accommodations from their plan, the SMSU College Now Office will need to receive a request for accommodations. Details about this process can be found online at [www.smsu.edu/academics/collegenow/504-and-iep-reources.html](http://www.smsu.edu/academics/collegenow/504-and-iep-reources.html).

**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.

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

1. Presenting or submitting another individual’s work or ideas as your own without proper use of a documentation style.  This includes but is not limited to homework assignments, term papers, research reports, lab reports, group projects, artistic works, tests, and class presentations.  This includes copying from online or library resources of any kind.
2. Submitting work as your own that was created with the assistance of artificial intelligence or machine learning platforms.
3. Using artificial intelligence or machine learning technologies to complete formal assessments such as assignments, exams, or quizzes.
4. Submitting someone else’s electronic work or ideas as your own without proper use of a documentation style, including but not limited to video clips, audio clips, electronic files, electronic programs, and any other copied electronic page, document, article, review, etc.
5. Submitting another individual’s work as your own, either by means of paraphrasing, summarizing, or quoting, without the proper use of a documentation style, or submitting someone else’s work as your own with only minor alterations.
6. Submitting another individual’s work without appropriate use of quotations, footnotes, or references.
7. Submitting the same work for credit for more than one course or the same course without written permission from all instructors involved.
8. Submitting or presenting falsified research and/or falsified or fabricated sources.
9. Copying from other individuals during any type of examination or knowingly allowing other students to copy off one’s own exam.
10. Having another individual or entity take an individual’s exam.
11. Receiving answers to an exam from another person or media before or during an examination or communicating exam answers to other students.
12. Tampering with any course material, including but not limited to syllabi, assignments, quizzes, or examinations.
13. Using any material or resources not permitted by the instructor for an assignment, quiz, or examination.
14. Acquiring or providing another person with an assignment, quiz, or examination or a portion of an assignment, quiz, or examination without consent of the instructor.
15. Changing, attempting to change or falsifying academic records, including attendance records or sign-in sheets.
16. Uploading course materials to websites during or after the completion of the course without the instructor’s permission.  Examples of course materials include, but are not limited to, examinations, essay questions, or other assessment-related materials.
17. Any other forms of academic dishonesty as outlined in the instructor’s syllabus or assignment instructions.