**Math 200 – College Now Syllabus**

**SMSU Course Title: Introduction to Statistics**

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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**

**Credit:  3 Semester Credits from SMSU, 1 year math credit for graduation at WHS**

**Time: Period 3 (9:57 – 10:51 am)**

**Text:** *Elementary Statistics: Picturing the World,* 7th Edition, Ron Larson & Betsy Farber  ©2019 Pearson/Saavas Learning

Course Description:

Introduction to measures of central tendency, measures of dispersion, frequency distributions, large and small samples, testing of hypotheses, and correlation analysis. Use of computers in statistical analysis. The required preparation is MATH 110, or three years of high school mathematics.

Learning Outcomes:

The course is designed to give students the theoretical and practical aspects of Statistics.

Upon completion of this course, students will be able to:

1. Identify the underlying population of a statistical study.
2. Identify the variables of interest.
3. Collect data on a random sample using an appropriate sampling technique.
4. Identify outliers in a data set.
5. Use graphical and numerical methods to summarize data.
6. Estimate the population parameters.
7. Check for model assumptions.
8. Conduct proper hypotheses testing.
9. Reach valid conclusions.
10. Use Statistical Software.

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:

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

* 1. Algebraic techniques for solving and manipulating equations
  2. Functions and Graphing

Major Content Areas:

1. Population, Sample, Parameters, and Statistics.
2. Sampling techniques.
3. Experimental design.
4. Types of Data
5. Graphical Method of Summarizing Data
   1. Bar Chart, Pie Chart, Stem and Leaf Plot, Histogram, Box Plot, Scatter Plot
6. Numerical Methods of Summarizing Data
   1. Mean, median, trimmed mean, quartiles, variance, standard deviation, range, inter quartile range.
7. Probability and Distributions.
   1. Basic Probability concepts
   2. Binomial Distribution
   3. Normal Distribution
   4. t-distribution
   5. Chi-square Distribution
   6. F distribution
8. Sampling Distributions for sample
   1. Mean
   2. Proportion
9. Confidence intervals for population:
   1. Mean
   2. Proportion
   3. Median
   4. Difference of two means (both equal and unequal variances)
   5. Difference of two proportions.
10. Hypothesis testing for population:
    1. Mean
    2. Proportion
    3. Median
    4. Difference of two means (equal and unequal variances, paired data)
    5. Difference of two proportions.
11. Analysis of Categorical Data:
    1. Contingency Tables
    2. Chi-square goodness of fit test
    3. Chi-square Test of independence
    4. Chi-square test of Homogeneity
12. Analysis of Bivariate Data:
    1. Correlation
    2. Least Square regression
    3. Inferences about the regression Model
    4. Checking for model Adequacy
13. Analysis of Variance:
    1. One way ANOVA
    2. Kruskal Wallis Test

**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 & Major Project 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 schedule a time outside of class.  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.

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

***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 them when they are requested.  Graded assignments (which are graded for accuracy and completion) may be assigned.  When the assignment is given, the student will be notified 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 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.

***Cumulative Tests.***A cumulative test will be given at the end of each quarter.  The score will account for approximately 10% of the grade.

Final grades will be calculated by total points received out of the 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 jumpstarting 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 that 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.