RIVERLAND Community College

Hayfield High School

COURSE SYLLABUS

COURSE TITLE: Fundamentals of Statistics **CREDITS:** 4

DEPT: Math **NO:** 2021

INSTRUCTOR: Inga Dudley **OFFICE:** Room 11

PHONE: (507)–671-1568 **E-MAIL:** idudley@hayfield.k12.mn.us

TEXTBOOK:

Beginning Statistics (2nd Edition)

By Carolyn Warren, Kim Denley, Emily Atchley

- **Hardcover:** 1008 pages
- **Publisher:** Hawkes Learning (2017)
- **Language:** English
- **ISBN-13:** 978-1932628678
- Access provided by Hayfield Community Schools

Required Software:

Hawkes Learning for Assignments and Assessments

- http://www.hawkeslearning.com/
- Access provided by Hayfield Community Schools

COURSE DESCRIPTION:

This course is an introduction of basic statistical methods including sampling, analyzing a research study, measures of central tendency and dispersion, probability, confidence intervals, hypothesis testing of means and proportions, Chi-square, analysis of variance, correlation, and regression. The use of statistical software is included in this course. Prerequisite: Math 0660 or qualifying score on placement test.MnTC (Goals 4/MA and 2/CT); (4 Cr - 4 lect, 0 lab)

COURSE TOPICS:

- Introduction to Statistics
  - Definitions and data classification
  - Types of studies and types of samples
  - Critiquing a published study
- Graphical displays of data
  - Frequency distributions
  - Graphical displays of data
  - Analyzing graphs
- Numerical descriptions of data
  - Measures of center
  - Measures of dispersion
  - Measures of relative position
- Probability and randomness
  - Introduction to probability
  - Additional rules for probability (optional)
- Discrete probability distributions
  - Discrete random variables
  - Binomial distribution
- Normal probability distributions

- Introduction to the normal distribution
- Finding area/probability under a normal distribution
- Central limit theorem with means
- Central limit theorem with proportions

- Confidence intervals
  - Estimating population means
  - Estimating population proportions
  - Estimating population variances (optional)
- Hypothesis testing
  - Fundamentals of hypothesis testing
  - Testing a population mean
  - Testing a population proportion
  - Testing a population variance (optional)
  - Chi-Square Test
  - Testing two population means
  - Testing two population proportions
  - ANOVA
- Correlation and regression
  - Scatter plots and correlation
  - Linear regression

COLLEGE WIDE LEARNING OUTCOMES:

MnTC Goal 4c
Mathematics/Logical Reasoning (MA)
MnTC Goal 2a
Critical Thinking (CT)

COURSE OBJECTIVES:

GOALS	OBJECTIVES Students will be able to	OUTCOMES The student will successfully
MnTC Goal 4b	clearly express mathematical/logical ideas in writing.	- interpret results of hypothesis tests and state conclusions based on analysis - apply critical evaluating questions to critique research
MnTC Goal 4c	explain what constitutes a valid mathematical/logical argument (proof).	explain how decision was made to reject/fail to reject null hypothesis and state the practical application of this decision.
MnTC Goal 4d	apply higher-order problem-solving and/or modeling strategies.	determine a linear model for a given situation and interpret its meaning
MnTC Goal 2a	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	- calculate measures of center and measures of dispersion with respect to a given dataset - calculate probabilities using basic probability rules - calculate probabilities using a Normal Distribution and/or Central Limit Theorem
MnTC Goal 2b	imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings to solutions to given situations or problems.	determine which test statistic should be used, verify assumptions, and calculate the appropriate confidence interval

MnTC Goal 2d	recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.	apply critical evaluating questions to critique research

ASSESSMENTS:

80% Summative Assessment

Unit Assessments: Completed on Hawkes.

Projects: Projects will be completed periodically.

20% Formative Assessment

*Quizzes: Q*uizzes will be given periodically each chapter to formally assess your progress and provide feedback to enhance learning.

Homework: Students must complete each certify each assignment on Hawkes with 80% accuracy before they can attempt the unit test.

Semester Final:

The semester final will be worth 10% of the grade course grade. There will be final for the fall (January) and spring (May) High School Semesters

Course requirements and schedule are subject to change at the instructor's discretion.

ATTENDANCE POLICY:

Attendance will follow the rules and guidelines established by Hayfield Community Schools, the Minnesota Department of Education, and the State of Minnesota.

GRADING:

Grading Criteria/Course Evaluation:

100-94%	A
93-90%	A-
89-87%	B+
86-84%	B
83-80%	B-
79-77%	C+
76-74%	C
73-70%	C-
69-67%	D+
66-64%	D
63-60%	D-

On assessments:

- Partial credit will be given for all attempted problems. Amount of partial credit will be determined by the amount completed correctly.
- Minimum score of 50% will be awarded if minimum requirement is met.
    - All problems must be completed to the best of the student's ability.

On homework:

- You will receive a total of 2 points credit if:
    - You certify with a score of 80%

ADDITIONAL COURSE INFORMATION:

Extra Help:

Students are encouraged to come in for extra help during my planning period. I plan to be in my room by 7:30 daily to assist students, but I will also need a few minutes of that time to get things ready for the day's lessons. Please come and visit if you are having any problems. If these times do not work well, please feel free to ask other math teachers, consult the internet, or set up an appointment with me if you have questions.

Student Requirements:

1. Be on time to class.
2. Come to class prepared with all required materials.
3. During class discussion, respect your peers and teacher by listening while others are talking. Please raise your hand to speak when appropriate.
4. Be a responsible student and a positive participant in class.
5. Respect your classmates and give them your attention because they probably have the same questions as you.

Making up Work

- It is the student's responsibility to check for missed assignments/quizzes/tests.
- Quizzes/Tests must be made up within one week.
- Homework must be made up before the unit is completed.
- Please consult the Moodle to find out what you missed

ADA Statement:

If you have a disability and need accommodations to participate in this course, please contact your instructor as soon as possible. Upon request, course resources will be made available in alternative formats such as braille, large print, or audio by calling 507-433-0600 (TDD 800-627-3529).
Students who have a disability, which might affect their performance in class, are asked to notify the instructor within FIVE days of beginning of the semester if appropriate accommodations are to be made.

Academic Integrity Statement:

Academic integrity is essential to a positive teaching and learning environment. In addition to Hayfield Community Schools District Policy 506, students enrolled in a CollegeNow course are expected to complete course work responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as their own will result in disciplinary action. The Student Code of Conduct defines Cheating: Includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, assessments, or examinations; (2) use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (3) the acquisition, without permission, of tests or other academic material belonging to a member of the faculty or staff; (4) engaging in any behavior specifically prohibited by a faculty member in the course syllabus or class discussion. Plagiarism: Includes, but is not limited to, the use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of terms papers or other academic materials. For the complete Student Code of Conduct, visit
http://www.riverland.edu/policies/Student-CodeConduct.cfm

Affirmative Action Statement:

Riverland Community College is an equal opportunity employer and educator.
http://www.riverland.edu/policy/Equal-Opportunity-Nondiscrimination-Policy-1000.pdf

Emergency Procedures:

Contact the Hayfield High School office and/or email your instructor: idudley@hayfield.k12.mn.u

Veterans Policy

Riverland is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with schedule course requirements. Instructs will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Veterans Services Office.

School Closure:

In the case of possible school closure, please refer to JMC Messenger for weather-related notices, emergencies, and other important announcements

ACADEMIC OR OTHER DIFFICULTIES:

If at any time during the semester you are having academic difficulties or are thinking about withdrawing from the course, please contact the instructor immediately. If you are having personal difficulties or problems preventing you from being successful, contact the Hayfield Schools Counselors or Riverland counselors by email at counselors@riverland.edu or call 1-507-433-0600 to schedule a counseling appointment.