



**Catholic  
Memorial**  
HIGH SCHOOL

## Year Long Course Plan

**Department: Mathematics**

**Course: Statistics & Probability**

**Essential Learning Outcomes:** After successfully completing this course, students will be able to:

- 1) Understanding basic concepts and goals of Statistics
- 2) Construct and draw inferences from charts, tables, and graphs that summarize data from real-world situations
- 3) Model real-world data using appropriate regression equations
- 4) Understand and apply measures of central tendency, variability, and correlation
- 5) Understand basic concepts and rules of probability and apply them to real-world problems
- 6) Make predictions that are based on experimental or theoretical probabilities
- 7) Create and interpret various discrete probability distributions
- 8) Understand the normal curve and use its properties to answer real-world problems using sets of data that are assumed to be normally distributed
- 9) Apply the concept of a random variable to generate and interpret probability distributions including binomial, uniform, normal, and chi square
- 10) Use appropriate technology to analyze and interpret statistical and probability problems
- 11) Apply Statistics across other disciplines
- 12) Communicate an understanding of statistical and probability topics using the language of Statistics & Probability

<b>Quarter 1</b>	<b>Quarter 2</b>
Unit 1: Introduction to Statistics ELO: 1, 12  <ul style="list-style-type: none"> <li>- An Overview of Statistics</li> <li>- Data Classification</li> <li>- Experimental Design</li> </ul> Formal Assessment  Unit 2: Descriptive Statistics ELO: 1, 2, 4, 10, 11, 12  <ul style="list-style-type: none"> <li>- Frequency Distributions and Their Graphs</li> <li>- More Graphs and Displays</li> <li>- Measures of Central Tendency</li> <li>- Measures of Variation</li> <li>- Measures of Position</li> </ul> Formal Assessment  Unit 3: Probability ELO: 5, 6, 10, 12	Unit 5: Normal Probability Distributions ELO: 8, 9, 10, 12  <ul style="list-style-type: none"> <li>- Introduction to Normal Distributions and the Standard Normal Distribution</li> <li>- Normal Distributions: Finding Probabilities</li> <li>- Normal Distributions: Finding Values</li> <li>- Sampling Distributions and the Central Limit Theorem</li> <li>- Normal Approximations to Binomial Distributions</li> </ul> Formal Assessment  Unit 6: Correlation and Regression ELO: 3, 4, 10, 11, 12  <ul style="list-style-type: none"> <li>- Correlation</li> <li>- Linear Regression</li> </ul> Formal Assessment  Unit 7: Confidence Intervals ELO: 4, 6, 9, 10, 11, 12  <ul style="list-style-type: none"> <li>- Confidence Intervals for the Mean (Large Samples)</li> </ul>

<ul style="list-style-type: none"><li>- Basic Concepts of Probability</li><li>- Conditional Probability and the Multiplication Rule</li><li>- The Addition Rule</li><li>- Counting Principles</li></ul> <p>Formal Assessment</p> <p>Unit 4: Discrete Probability Distributions ELO: 7, 10, 12</p> <ul style="list-style-type: none"><li>- Probability Distributions</li><li>- Binomial Distributions</li><li>- More Discrete Probability Distributions</li></ul> <p>Formal Assessment</p>	<ul style="list-style-type: none"><li>- Confidence Intervals for the Mean (Small Samples)</li><li>- Confidence Intervals for Population Proportions</li><li>- Confidence Intervals for Variance and Standard Deviation</li></ul> <p>Formal Assessment</p>
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