Baldwin Senior High School
College Statistics Course Description

COURSE DESCRIPTION:

College Statistics is the high school equivalent of a one semester, introductory college statistics course. In this course, students develop strategies for collecting, organizing, analyzing, and drawing conclusions from data. Students design, administer, and tabulate results from surveys and experiments. Probability and simulations aid students in constructing models for chance phenomena. Sampling distributions provide the logical structure for confidence intervals and hypothesis tests. Students use a TI-84+ graphing calculator and Web-based java applets to investigate statistical concepts. To develop effective statistical communication skills, students are required to prepare frequent written and oral analyses of real data.

COURSE OBJECTIVES:

College Statistics will challenge and sharpen student's analytical skills by having them think statistically, incorporate technology, work collaboratively, and express themselves thoughtfully. It will also prepare students to take courses that require a non-math major statistics course. Specifically, upon successful completion of this course, the student should be able to:

1. Analyze data and summarize it numerically
2. Calculate the probability of single and compound events
3. Use known probability distributions
4. Compose confidence intervals
5. Perform hypothesis tests
6. Perform regression

MAJOR TOPICS:

Data Production
Data Analysis
Probability
Inference

GRADING:

There will be a test for each chapter covered. There will also be a quarterly for the 1st marking quarter, a midterm, a quarterly for the 3rd marking quarter, and a final exam.

Exams:	25%
Quizzes /Graded Assignments:	50%
Homework	15%
Classwork/Participation	10%

COURSE OUTLINE:

Chapter 1 Analyzing One-Variable Data
Day 1: Introductions
Day 2: Syllabus & Pepsi Activity
Day 3: Lesson 1.1 - Statistics: The Science and Art of Data
Day 4: Lesson 1.2 - Displaying Categorical Data
Day 5: Lesson 1.3 - Displaying Quantitative Data: Dotplots
Day 6: Lesson 1.4 - Displaying Quantitative Data: Stemplots
Day 7: Lesson 1.5 - Displaying Quantitative Data: Histograms
Day 8: Quiz 1.1 to 1.5
Day 9: Lesson 1.6 - Measuring Center
Day 10: Lesson 1.7 - Measuring Variability
Day 11: Lesson 1.8 - Summarizing Quantitative Data
Day 12: Lesson 1.9 - Describing Location in a Distribution
Day 13: Review
Day 14: Quiz 1.6 to 1.9
Day 15: Chapter 1 Review
Day 16: Multiple Choice Review
Day 17: Practice Interpretations
Day 18: Chapter 1 Test

Chapter 2 Analyzing Two-Variable Data
Day 1: Barbie Bungee Intro
Day 2: Lesson 2.1 - Two Categorical Variables
Day 3: Lesson 2.2 - Two Quantitative Data
Day 4: Lesson 2.3 - Correlation
Day 5: Lesson 2.4 - Calculating the Correlation
Day 6: Quiz 2.1 to 2.4
Day 7: Lesson 2.5 - Regression Lines
Day 8: Lesson 2.6 - Least-Squares Regression Line
Day 9: Lesson 2.7 - Assessing a Regression Model
Day 10: Lesson 2.8 - Models to Curved Relationships
Day 11: Quiz 2.5 to 2.8
Day 12: Chapter 2 Review
Day 13: Barbie Bungee Finale
Day 14: Chapter 2 Test

Chapter 3 Collecting Data
Day 1: Anchored Putting Intro
Day 2: Lesson 3.1 - Data Collection
Day 3: Lesson 3.2 - Sampling: Good & Bad
Day 4: Lesson 3.3 - Simple Random Sampling
Day 5: Lesson 3.4 - Estimating a Margin of Error
Day 6: Quiz 3.1 to 3.4
Day 7: Lesson 3.5 - Sampling & Surveys
Day 8: Lesson 3.6 - Observational Studies & Experiments
Day 9: Lesson 3.7 - How to Experiment Well
Day 10: Lesson 3.8 - Inference for Experiments
Day 11: Lesson 3.9 - Using Studies Wisely
Day 12: Quiz 3.5 to 3.9
Day 13: Chapter 3 Review
Day 14: Anchored Putting Finale
Day 15: Chapter 3 Test

Chapter 4 Probability
Day 1: Lesson 4.1 - Randomness, Probability, & Simulation
Day 2: Lesson 4.2 - Basic Probability Rules
Day 3: Lesson 4.3 - Two-way Tables and Venn Diagrams
Day 4: Lesson 4.4 - Conditional Probability and Independence
Day 5: Probability Practice
Day 6: Quiz 4.1 to 4.4
Day 7: Lesson 4.5 - General Multiplication Rule
Day 8: Lesson 4.6 - Multiplication Rule for Independent Events
Day 9: Lesson 4.7 - Multiplication Counting Principle and Permutations
Day 10: Lesson 4.8 - Combinations and Probability
Day 11: Big Ideas and Probability FRAME
Day 12: Quiz 4.5 to 4.8
Day 13: Chapter 4 Review
Day 14: Chapter 4 Test

Chapter 5 Random Variables
Day 1: Lesson 5.1 - Introduction to Random Variables
Day 2: Lesson 5.2 - Analyzing Discrete Random Variables
Day 3: Mathalicious - Basketball IQ
Day 4: Mathalicious - Three Shots
Day 5: Lesson 5.3 - Binomial Random Variables
Day 6: Lesson 5.4 - Analyzing Binomial Random Variables
Day 7: Quiz 5.1 to 5.4
Day 8: Lesson 5.5 - Continuous Random Variables
Day 9: Lesson 5.6 - The Standard Normal Distribution
Day 10: Lesson 5.7 - Normal Distributions Calculations
Day 11: Normal Distributions Practice
Day 12: Quiz 5.5 to 5.7
Day 13: Chapter 5 Review
Day 14: Normal Distribution Foldable Review
Day 15: Chapter 5 Test

Chapter 6 Sampling Distributions
Day 1: Lesson 6.1 - What Is a Sampling Distribution? Day 1
Day 2: Lesson 6.1 - What Is a Sampling Distribution? Day 2
Day 3: Lesson 6.2 - Sampling Distributions: Center & Variability
Day 4: Lesson 6.3 - Sampling Distribution of a Sample Count
Day 5: Quiz 6.1 to 6.3
Day 6: Lesson 6.4 - Sampling Distribution of a Sample Proportion
Day 7: Lesson 6.5 - Sampling Distribution of a Sample Mean
Day 8: Lesson 6.6 - Central Limit Theorem
Day 9: Quiz 6.4 to 6.6
Day 10: Chapter 6 Review
Day 11: Review Day - Reese's Pieces
Day 12: Chapter 6 Test

Chapter 7 Estimating a Parameter
Day 1: Lesson 7.1 - The Idea of a Confidence Interval
Day 2: Lesson 7.2 - What Affects the Margin of Error?
Day 3: Lesson 7.3 - Estimating a Proportion
Day 4: Quiz 7.1 to 7.3
Day 5: Lesson 7.4 - Confidence Intervals for a Proportion
Day 6: Lesson 7.5 - Estimating a Mean
Day 7: Lesson 7.6 - Confidence Intervals for a Mean
Day 8: Confidence Intervals Review
Day 9: Quiz 7.4 to 7.6
Day 10: Chapter 7 Review Day 1
Day 11: Chapter 7 Review Day 2
Day 12: Chapter 7 Test

Chapter 8
Day 1: Lesson 8.1 - The Idea of a Significance Test
Day 2: Lesson 8.2 - Significance Tests and Decision Making
Day 3: Lesson 8.3 - Testing a Claim about a Proportion
Day 4: Quiz 8.1 to 8.3
Day 5: Lesson 8.4 - Significance Tests for a Proportion
Day 6: Bonus Lesson 8.4 - Can You Taste the Rainbow?
Day 7: Lesson 8.5 - Testing a Claim about a Mean
Day 8: Lesson 8.6 - Significance Tests for a Mean
Day 9: Quiz Review
Day 10: Quiz 8.4 to 8.6
Day 11: Chapter 8 Review
Day 12: Chapter 8 Test

Chapter 10

Day 1: Chapter 10 Intro
Day 2: Lesson 10.1 - Testing the Distribution of a Categorical Variable
Day 3: Lesson 10.2 - Chi-Square Tests for Goodness of Fit
Day 4: Quiz 10.1 to 10.2
Day 5: Lesson 10.3 - Testing the Relationship between Two Categorical Variables
Day 6: Lesson 10.4 - Chi-Square Tests for Association
Day 7: Quiz 10.3 to 10.4
Day 8: Lesson 10.5 - Relationship Between Two Quantitative Variables Day 1
Day 9: Lesson 10.5 - Relationship Between Two Quantitative Variables Day 2
Day 10: Lesson 10.6 - Inference for Slope of a Least-Squares Regression Line
Day 11: Quiz 10.5 to 10.6
Day 12: Chapter 10 Review Day 1
Day 13: Chapter 10 Review Day 2
Day 14: Chapter 10 Test