Glendale Unified School District

High School

June 16, 2020

Department:	Special Education
Course Title:	Concepts of Statistics and Personal Finance
Course Code:	3220R/3221R
Grade Level(s):	12
School(s) Course Offered:	Crescenta Valley High School, Glendale High School, Hoover High School
UC/CSU Approved (Y/N, Subject):	N
Course Credits:	10
Recommended Prerequisite:	Integrated II (3009/10R/RH)
Recommended Textbook:	There is no textbook for this course. Materials can be found in a Google Drive Folder and Everfi's Financial Literacy course for high schoolers.
Course Overview:	The course is designed to teach statistical literacy. Content will include different types of data, how to collect data, and exploratory data analysis. Students will learn to create their own data visual representations using online learning tools such as StatKey. Other topics include but are not limited to mean vs median, measures of central tendency, spread, response bias, scatterplots, outliers and multi-variate data analysis. In the final quarter of the class, students will learn about financial literacy, including budgeting, credit, and employment. This course covers some of the statistics standards found in the California State Standards for Mathematics in grades 6 through Integrated III.

Course Content-First Semester

Unit 1:   *(approximately 5 weeks)*
Math Standards: 6.SP.1-3, 6.SP.5c, S-IC.1, S-ID.3

A.   The topics in Unit 1 are exploratory by nature. Students will learn how to use google forms to create surveys and collect data on spreadsheets for analysis.   Statistical ideas such as quantitative (categorical) and qualitative (numerical), proportions, misleading data, and response bias are introduced in project based learning. Students are familiarizing themselves with the idea that we all consume statistics in our daily life. Content in this unit is introduced but not reviewed in depth.

B.   In pairs of groups, the students are tasked with analyzing breakfast cereals using a given data set. They are taught how to use StatKey to report regarding a certain nutritional characteristic (i.e. fiber, protein, fat) to determine the healthiest cereal. Students present their findings to the class. Learning objectives in this assignment include the introduction of mean, median, outliers, categorical and numeric data.

Unit 2:   *(approximately 7 weeks)*
Math Standards: 6.SP.2, 7.SP.1-2, S-IC.2, S-IC.2, S-ID.2

A.   The topics in Unit 2 represent the main substance of the course. Students compare the uses of mean vs. median in and the benefits for a given situation. Students also explore the spread of the data, specifically looking at data visualizations and the shapes of the distribution. Students examine the effects of outliers on mean, median, and spread. Students are introduced to different sampling methods.

B.   Topics are presented via short video lessons and teacher directed notes and a quiz, followed by a short activity based lesson that reinforces the topic taught.

        In the assignment that teaches about sampling methods and how some may include bias, students are presented with two surveys with differences in question wording, types and sensitivity of questions. One survey is taken with the students name and the other is taken anonymously. In class analysis of the responses prompts students to discover the types of bias that may be present in data collection. Students discuss and create a "salient points" poster for classroom use.

Unit 3:   *(approximately 4 weeks)*
Math Standards: 7.SP.1-2, 8.SP.1

A.   The topics in Unit 3 include scatter plots and bivariate data. Students are presented with several examples of bi-variate data that represent real world experiences, such as how sport drink sales change vs. the temperature of the day.

B.   Topics are again presented via two short video lessons, a quiz and follow-up activities.

        In an assignment for bivariate data, students use the *New York Times* application "What's going on with this Graph?" Students are presented with a scatterplot that measures the foods nutritionists say are healthy and the foods Americans say are healthy.   Follow up questions are asked pertaining to what is noticed in the graph and what students may wonder about the graph. Students are invited to post comments and questions on the *New York Times* website. Students begin the process of learning to analyze graphs related to real world events and topics.

Course Content-Second Semester

Unit 4:   *(approximately 6-7 weeks)*
CTE Anchor Standards: 3.SLS 11-12.2, 4.WS 11-12.6, 5.WS 11-12.7, 8.SLS 11-12.1d, 10.WS 11-12.6
Standards for Career Ready Practice: 4-5

A.   This unit is designed for students to explore the field of statistics in the real world. They have foundational knowledge of collecting data, types of graphs, central tendency, spread bias etc. Now they have a chance to explore how these topics relate to all fields in society. Lesson topics include: careers in stats, history of stats, how to use stats to narrow college and post-secondary schooling choices. Students will use several online resources such as The New York Times, Ted Ed, and Information is Beautiful to apply and extend their knowledge of statistics.

B.   In an assignment related to how statistics are used in a multitude of careers, students will watch short videos called This is Statistics and Why you Need to Study Statistics. The videos highlight how statistics are used in various careers including journalism, sports, health care, agriculture, video game design and more. Students, with a partner or on their own, will then research one career where they were most surprised about the use of statistics and create a short presentation via Google slides highlighting the important ways stats are used.

Unit 5:   *(approximately 4 weeks)*
Math Standards: 6.SP.1-3, 6.SP.5c-d, 7.SP.1-2, 8.SP.1, S-IC.1, S-IC. 3, S-IC.6, S-ID.2-3

A.   This unit is a culmination of the statistics learned thus far in the course. All of the learning activities in this unit culminate in a completely student-driven experiment project of their own (where they go outside of the classroom to collect their own experimental data. Students first review how to conduct a controlled experiment and then conduct a short practice experiment as a class before beginning their own data experiment.

B.   One assignment from this unit begins with a review of controlled experiments. Students watch a short video and review random assignment, replication, control group, placebo, single blind and double blind experiments, which were topics covered from previous courses like Biology, Earth Space Science or Chemistry. As a class, these topics are reviewed and students complete a teacher-made worksheet and enter pertinent vocabulary into their Stats Took Kit for further use.

Unit 6:   *(approximately 7 weeks)*
GUSD Board Priority

A.   The topics in Unit 6 include banking basics, income and employment, budgeting, consumer skills, credit and debt, financing higher education and insurance. Each topic begins with a pre-assessment of prior knowledge and a personal reflection. Students are presented with instruction on each topic, they analyze information learned, they explore various scenarios, they end with a quiz and follow-up activities.

B.   In the Credit and Debt assignment, students compare the advantages and disadvantages of using credit and debt, analyze features of credit cards and the impact they have on their financial plan and discover how repaying credit can affect the cost of borrowing. Students begin to understand how the cost of credit is influenced and begin developing strategies to manage their debt to avoid negative consequences such as lower credit scores.