- **Course Description**

  Course Title: **Business Statistics**

  Subject Area and Category: **"c" – Mathematics: Statistics**

  Grade Level: **11, 12**

  Unit Value: **1.0 (one year, two semesters)**

- **Catalog Description**

Business Statistics introduces students to statistical concepts, techniques, and tools for collecting, analyzing, and drawing conclusions from data as applied in business. The course focuses on the student as a user and producer of statistics to inform and support decision making in a business context. An emphasis is placed on the use of spreadsheet software (Excel) to perform statistical analyses.

Course Prerequisites: Algebra 1, Algebra 2, Geometry

- **CTE Course Attributes**

  Is this course classified as a Career Technical Education course? **Yes, integrated.**

  Industry Sector: **Finance and Business**

  Career Pathway: **Business Financial Management**

Key CTE learning outcomes served through completion of the course are:

Students attain a mastery of Excel spreadsheet software, and demonstrate proficiency of the course's statistical and business content using these applications.

Students apply their statistical skills to compare and contrast college opportunities and the related costs of attendance. Each student will share their findings using Excel and one other form of communication (video, art, music etc).

Students research and evaluate risk and return for a variety of common investment alternatives, and analyze data presented in business plans.

Students research primary and secondary resources for data in their chosen profession or college major. Each student maintains an inventory of these resources for future reference in college and/or work. Databases are rated for their reliability. Students deconstruct the statistical design of these surveys and experiments, and describe them using the proper statistical and business vocabulary.

Students synthesize their knowledge of Excel and the six functions of the dollar to appraise asset values for stocks, bonds, real estate, and other investment opportunities using multi-period discounted cash flows.

Students assess the role statistics has played in the macroeconomic business cycle including a thorough review of the financial crisis of 2008.

Students design dynamic multivariate financial portfolios that integrate an understanding of random variables. Within these Excel applications, students assess the impact of variability for certain elements of risk on their intermediate and long-term financial futures.

Students judge the potential bias of advertising assertions through the formulation of experiments that isolate the claim and judge its merits using inferential procedures.

- **Course Background Information**

Context: Business Statistics integrates a standard first year statistics curriculum for secondary school students with an introduction to the world of business and finance. It serves as a college preparatory gateway for future studies in statistics, economics, business, and finance. Authentic applications are embedded that illuminate the connection between abstract mathematical concepts and their applied use in a variety of business contexts. Students develop statistical competencies that increase their likelihood of success in future higher education endeavors.

Students develop a mastery of Excel spreadsheet applications and attain other practical office skills that can be listed on employment, internship and/or college applications. A staff teacher with a full math credential, economics credential, and over 20 years of experience in business and finance will infuse authentic presentations of business norms and practices.

History of Course Development: This Business Statistics course was closely patterned after the integrated Business Statistics course developed at the Spring 2010 University of California Curriculum Integration (UCCI) Institute focusing on subject area "c" – mathematics, and the Career Technical Education (CTE) industry sector "Finance and Business". This conference of sixty plus California educators produced this self described "innovative model course" that "infuse(d) core foundational math concepts with relevant career technical elements". This course was posted on the University of California Curriculum Integration (UCCI) Institute web site as a reference for assimilation into high school course catalogues (http://www.ucop.edu/ucci/integ_courses.html).

Local businesses, service professionals, and national trade groups influenced course design. This feedback provided valuable information on the types of skills required for entry-level employment in today's changing business climate. These skills were integrated with the course wherever possible. Further collaboration with the regional business community will continue to add course resources, field trip opportunities, and guest speaker options. This evolution insures students receive an up-to-date, meaningful educational experience. Local businesses have expressed an interest in developing internships for students who complete courses of this nature.

Most modifications of the UCCI Business Statistics course involved the incorporation of Excel spreadsheet skills into the student's practice of statistical thinking (not present in the UCCI course). A second textbook was added to teach and integrate these technological skills into the daily instruction. In addition, unit descriptions and key assignments have been expanded upon. Key assignments were added that allow students to demonstrate their knowledge and understanding of business finance topics.

Technology: The course design integrates spreadsheet skills (Excel) throughout. While secondary school students generally receive extensive training in word processing technologies and PowerPoint or equivalent software tools, spreadsheet programs such as Excel are often overlooked in the development of curriculum. This course addresses this learning gap through the inclusion of a textbook written for this very purpose. All students will be provided free access to licensed versions of Excel as part of the school provided materials. Most assessments, assignments, and projects will require the students to demonstrate their knowledge and understanding of statistics through the use of Excel software.

- **Textbook Information**

The course will utilize two textbooks, both solely written for classroom use. The first text integrates Excel skills with the core Statistics curriculum. The second is the textbook around which the UCCI Institute panel used in its development of the integrated course described earlier in the "History of Course Development".

Title: **Business Statistics Using Excel, 1st Edition (BSUE)**
Publication Date: **2010**
Publisher: **Oxford University Press**
Author(s): **Glyn Davis, Branko Pecar**
Usage: **Primary Text**

Title: **Statistics Through Applications, 2nd Edition (STA)**
Publication Date: **2002**
Publisher: **Freeman**
Author(s): **Darren S. Starnes, Daniel S. Yates, David S. Moore**
Usage: **Secondary Text**

Supplemental text materials will be selections from periodicals, newspapers, on-line resources, documentaries and business media (CNBC, Bloomberg) that fit unit themes. All students will be provided free access to licensed versions of Excel as part of the school provided materials. Students will have access to laptop computers in the classroom.

- **Course Purpose & Outline**

Course Purpose: Students recognize the significance of statistics in the areas of business, marketing, and finance, and its role in effective decision making within these fields. Basic principles of statistical analysis are covered in the course including but not limited to: presentation, categorization and analysis of data (both tabular and graphical): measures of center, spread, and shape of distributions; design and critique of experiments and observational studies; basic probability rules; distinguishing between population and sampling distributions; inferential analysis using confidence intervals, and tests of significance; and interpretation of least squares regression lines, slope, correlation and coefficient of determination. Applying this statistical knowledge, students will analyze data, estimate population parameters, test hypotheses, forecast business trends, appraise asset values, interpret business plans, and create mock investment portfolios**.**

Course Outline:

- **Solid bullets identify Statistics outcomes**
  - **Open bullets identify CTE Business & Finance outcomes**

Unit 1 – Introduction to Excel: BSUE Text Chapters 1 & 2
Introduction to "Financial Education For A New Generation"

Outcomes

Students learn the basic organization and terminology of the Excel software. The "Financial Education For a New Generation" (FEFNG) teaches students the value of personal financial planning, and introduces them to the critical thinking skills and mathematical tools required to conduct these planning steps. As the semester progresses, the students' understanding of personal finance transitions them toward a deeper understanding of how their collective consumption patterns lead to market formation, and the development of business goals that service this demand. Each FEFNG unit assigns interactive classroom exercises that allow students to apply their learning in realistic applications of finance (see Key Assignments for further details on the FEFNG program).

Unit 2 – Business Statistics Defined: BSUE Text Chapter 4.1, 4.2; CTA Text Chapters 1 and 2

Outcomes

Students recognize the growing importance of statistics in their daily lives, and its omnipresent role in the effective decision-making of businesses and investors. Statistical and financial vocabulary is infused through student interaction with authentic business communications. Students compare and contrast a variety of statistics commonly found in business plans, marketing strategies, and investment prospectuses. These inquiries focus on the statistical mathematics involved in the presentation of business and financial viability and accountability.

- Distinguish between quantitative and categorical variables
- Calculate basic measures of center - mean, median, mode
- Calculate measures of spread – variance, standard deviation, inter-quartile range, range
- Identification of outliers in a data set
- Recognize the advantages and disadvantages of different measures of center and spread
  - Define business vocabulary (i.e. target market, demographics, Dot-com Company, business management, entrepreneur, finance, accounting)
  - Identify, compare and contrast business plans, financial instruments, and standard investment vehicles (e.g. stocks, bonds, money market funds, real estate)
  - Learn and apply the six functions of the dollar
  - Leverage and its impact on risk and return examined and applied

Unit 3 – Populations and Samples / Business Demand: BSUE Text Chapters 3, 6.1 and 6.2, CTA Text Chapter 3 and 5

Outcomes

College selection is examined through a prism of consumer choice and financial/career planning.

Students will gather, interpret, and share statistical data on the college selection process and costs of attendance. These college inquiries will be compared with the data collection and presentation strategies employed in the greater business and finance community (unit 2). Students will investigate common sources of statistical bias, and distinguish them from sampling error.

- Organizing quantitative and categorical data
- Presentation of data in table form
- Determining form, strength and direction for paired data sets using scatter plots
- Interpret graphic representation of data (e.g. bar charts, pie charts)
- Distinguishing between samples and the populations from which they are drawn
- Experiments versus observational studies
- Describe and communicate sampling error
- Identify sources of bias and determine their impact on decision-making
  - Product/service differentiations established through statistical data
  - Market research and analysis of financial instruments through statistical data
  - Market share/competition considerations defined for a wide variety of business sectors
  - Brand loyalty investigated through students' own consumption patterns and experiences

Unit 4 – Graphical Data Interpretation / Business Decisions: BSUE Text Chapter Review 3, 4 & 6; CTA Text Review Chapters 1-3

Outcomes

Students present and interpret data with a variety of graphic representations (i.e., bar charts, pie charts, histograms, stem plots, dot plots, and time plots). Utilizing graphical displays generated on Excel, students will communicate the statistical findings from unit three's college investigations. These reports will compare and contrast the demographics of different student bodies, calculate the probability of acceptance for prescribed student profiles, and graphically assess the costs of attendance. Primary and secondary sources of business and investment data are researched and assessed for reliability. These sources include but are not limited to business plans, annual corporate reports, stock fund prospectuses, and official statements for corporate and municipal bonds. An emphasis is placed on data summarized in graphical and tabular displays. Through these inquiries, students examine historical profit/loss outcomes, determine product and company viability, and weigh risk relative to return for a variety of financial assets.

- Create multi-media presentations of data that integrate Excel displays with other forms of media (web, video, audio etc.)
- Construct data tables, frequency distributions, and histograms
- Communicate a thematic message to a target market using frequency tables, bar charts, pie charts, stem and leaf plots, line charts, histograms etc.
- Analyze frequency and cumulative frequency distributions
  - Market share/competition/marketing options reported through graphic displays
  - Industry sector segmentation reported through graphic displays
  - Project profit/loss outcomes reported through graphic displays
  - Product viability examined through graphic displays
  - Target market identification through graphic displays
  - Business decisions aided through the interpretation of graphic displays

Unit 5 – Linear Regression / Business Trends: BSUE Portions of Text Chapter 10; CTA Text Chapter 4

Outcomes

Students will research and interpret data characteristics for products and services, and use them to assess their market potential and future prospects. These inquiries introduce least squares regression as a means for assessing whether a linear relationship exists between paired quantitative data. Students synthesize multiple sources of statistical data to create diversified mock investment portfolios. Risk parameters are determined through an analysis of historical trends.

- Least Squares Regression Lines (LSRL) created from paired data
- Correlation and coefficient of determination used to assess strength, direction, and form of relationships between two quantitative variables
- Slope interpretation for LSRL
- Residuals calculated and their relevance understood
  - Examining the relationship of a product's price and other quantitative variables
  - Sales forecasting through extrapolation of LSRL models (plus statistical limits on such procedures)
  - Budget forecasting incorporating moving averages, weighted moving averages, and adaptive filters
  - Market trends analyses using LSRL techniques

Unit 6 – Statistical Probability / Business Outcomes: BSUE Text Chapter 5, Review 6.1; CTA Text Portions of Chapters 6, 7, 8 and 9

Outcomes

Students predict business outcomes based upon probability forecasting. Students learn a variety of mathematical models for asset valuation of stocks, bonds and real estate. These valuation models synthesize their knowledge of the six functions of the dollar and Excel spreadsheet skills. Students simulate potential return scenarios for their portfolios created in unit five. These cash flow models incorporate random variables that allow students to consider a range of parametric assumptions. Students establish reasonable upper and lower bounds for these random variables and a "most likely" parametric value within these extremes. Parametric domain constraints are determined after a review of published financial data (e.g. dividend returns by industry group, historic appreciation trends, inflation prospects).

- Determine elements and constraints of sample space
- Basic probability rules including Law of Large Numbers and Multiplication Rule
- Joint and conditional probabilities calculated using tree diagrams
- Probability theory applied in the determination of parametric constraints (eg multiplication rule)
- Distributions for parametric domains described with regards to center, shape, spread and outliers
- Standard normal distributions characterized and identified in business practice
- Sampling distributions distinguished from population distributions
- Product lines of investment vehicles compared and contrasted
- Marketing materials for investment products filtered for reliable data and potential statistical bias
- Competition and other external changes identified and incorporated into mathematical models
- Forecasting techniques implemented for budgets, sales, and future returns

Unit 7 – Inferential Estimates / Managing Marketing Strategies: BSUE Text Chapter 6.3; CTA Text Portions of Chapters 10, 11, 12, 13, 14 (Selections on Confidence Intervals)

Outcomes

Students will collect, analyze, and present data to determine student interest in future course offerings at Granada Hills Charter High School (GHCHS). This student-directed research will mirror the practices of business and finance. Point estimates and confidence intervals are introduced in this unit.

- Confidence intervals for proportions and means calculated and interpreted
- Inferential conditions checked and their mathematical necessity examined
- Standard normal curves provide graphic interpretation of a confidence interval
- Target markets identified and researched
- Formulate sales projections for new product or service
- Product surveys designed to test "interest" for future course and club offerings at GHCHS

Unit 8 – Inferential Testing / Data Collection & Management: BSUE Text Chapter 6.4; CTA Text Portions of Chapters 10, 11, 12, 13, 14 (selections on Tests of Significance)

Outcomes

Students help serve the data analysis needs of the school community in an Inferential Thinking Project. Student teams are assigned a department, individual teacher or administrator who will serve as their "client". The team members will interview the "client" to determine their data analysis needs. Student teams will be required to incorporate at least one of each of the following inferential procedures in their investigations: bi-variate regression, confidence interval, significance test for mean, significance test for proportion, and significance test to determine independence. Business examples of their data collection techniques are cited as support for their inquiries. Further connections are drawn to earlier student work in the area of asset valuation and portfolio management.

- Hypotheses tests for means and proportions
- Significance level, p-value, and rejection regions are calculated and understood
- Inferential conditions known and checked
- Normality of sampling distributions understood along with its mathematical necessity
- Statistical significance established and communicated through inference
  - Economics of marginal cost (economies of scale)
  - Business data collected, inventoried, and analyzed for relevance and reliability
  - Business viability determined through statistical inference
  - Asset management and preservation appreciated through an examination of the investment returns observed in their project portfolios compared with the return outcomes predicted earlier in the course

Unit 9 – More on Linear Regression / Forecasting & Decision Making: BSUE Text Portions of Chapters 10 and 11.

Outcomes

Students determine relationships between unemployment and macroeconomic data, and forecast future employment trends. Statistical tools include the identification of a mathematical model that best fits a given data set for two quantitative variables. Students construct scatter plots to show the relationship between macroeconomic data and the unemployment rate for the past five years. Documentaries and periodicals are reviewed for various perspectives on the financial crisis of 2008. Students synthesize their inquiries into proposals for national financial reform.

- Linear regressions, correlation and coefficient of determination reviewed
- Regression models for exponential and power functions (logarithmic transformation of variables)
- Least squares regression line used in forecasting and limitations of extrapolation examined
- Hypotheses tests and confidence intervals for slope of LSRL performed
  - Investment correlations examined to test portfolio diversification
  - Business predictions projected through LSRL models
  - Sales and return projections and trend analysis performed on key product lines

Unit 10 – Advanced Data Analysis / Strategic Planning: BSUE & CTA Text Selective Review of All Chapters

Outcomes

Students analyze and interpret an annual report in order to formulate a strategic plan to determine future market/business performance by analyzing charts, sample data, frequency tables, significance testing, and growth probabilities. Students use their statistical and technological skills to develop a business plan for a product or service that includes a mission statement, financial plan, and marketing plan.

- Data analysis, survey design, probability analysis, and inference are integrated to demonstrate a student's comprehensive understanding of all course topics
  - All course topics in Business and Finance integrated in the creation of business plans

- **Key Course Assignments**

Students complete Excel assignments and/or projects every week that assess their knowledge of the statistical and technological skills covered in the assigned readings from the textbooks, lectures and other media instruction delivered during class time.

Basic Excel Proficiency In-Class Quizzes (All Units): Approximately once every one to two weeks, students will be provided with data and required to demonstrate proficiency in recently acquired Excel statistical applications (e.g. bi-variate regression, pie chart creation, linear combination of random variables). These quizzes will be timed and the student responses will be submitted through campus email.

"Financial Education For A New Generation" (First Semester): Students will complete this financial planning program sponsored by the National Endowment of Financial Education. Unit topics are: Your Financial Plan; Budgeting; Investing; Good Debt, Bad Debt; Your Money; Insurance; and Your Career**.** These topics advance the student's understanding of themselves as consumers and investors. FEFNG transitions students toward a deeper understanding of how their collective consumption patterns lead to market formation, and the development of business goals that service this demand. Each unit assigns interactive classroom exercises and assignments that allow students to apply their learning in realistic applications of finance. Collaboration with the social studies department will connect these topics with senior studies in government and economics. Program materials are available upon request or can be reviewed on-line (hsfpp.nefe.org).

College Investigation Project (Units 1 – 4): College selection is viewed through a prism of consumer choice. Students are assigned a state or region of the country, then identify and research three colleges in that geographic area. Students organize and communicate the profile of matriculating students; assess the likelihood of acceptance for profile students with various combinations of SAT scores and GPAs; and determine a cost breakdown for attending each of the selected colleges. Students report their findings in an oral presentation that emphasizes statistical data and uses graphic and tabular displays studied in the first four units of the course (e.g. pie charts, box plots). Students must incorporate their recently acquired Excel skills, and one other form media in their presentation.

Cell Phone Case Study Assignment (Unit 2) – Students will compare and contrast three cell phone contract plans on behalf of a fictional company, including 2-year contract price, price-per-minute coverage, and data connection fees. A memo is prepared recommending which of the three cell phone contract plans would be appropriate for that business. Students must include a hand drawn bar, pie, and line chart to illustrate their conclusions, and summarize their data in an Excel spreadsheet.

Coffee Business Trends (Unit 2) – Students will list the prices of coffee product lines from Starbucks, Coffee Bean, McDonald's and other competitors. Students calculate the mean, median, mode, standard deviation, and variance for each company's line of products. Students will research past sales and predict future sales trends for each of the products. Their findings are presented in written form with Excel spreadsheet addendum.

Favorites Survey Assignment (Unit 3) – Students develop a survey based on ten of their "favorites" (e.g. activities, hobbies, products). Their surveys are administered to 30+ fellow students, and results are reported in a frequency chart. Students interpret the results in writing including a technical description of survey design, and use their findings to select a product or service to market to their peers. Peer review of the reports will identify potential sources of bias and recommend actions that can be taken to avoid such bias in the future.

Business Statistics Vocabulary Assignment (Units 2 - 3) – Students will develop a cartoon strip using five statistical and/or business terms learned in units 1-3, for classroom display. Students will begin this assignment with a web search for cartoons that incorporate business themes and vocabulary. A class period will be devoted to group activities that allow students to brainstorm ideas and inspire creativity.

Favorites Survey Data Assignment (Unit 4) – Student groups use the frequency data from the previously created Favorites Survey to create a variety of graphical representations (bar charts, pie charts, histograms, stem plots, dot plots, and time plots) of projected sales. Groups will develop a marketing plan and advertising materials for their product. Students will explain and present their product, statistical analysis, marketing plan, and advertising materials to the class.

Financial Product Differentiation Assignment (Unit 5) – Students collect comparable data for competing financial products of the same type, then organize, summarize and present that data to determine the best choice for investment. These research activities consider risk-return factors and are conducted for a range of investment categories. Findings are presented in Excel spreadsheets and evaluated in class discussions.

Business Asset Valuation Assignment (Unit 6) - Students learn how projections of future earnings translate to the valuation of various asset classes. Students are provided statistical information for three asset classes (real estate, bonds, and stocks) and must perform discounted cash flow analyses to establish a present market value for these assets. These models must incorporate multiple random variables that can be modified with a single cell input. The student graphically represents the distribution for this random variable over the typical holding period for this asset class. The results are summarized in a three to five page written report with Excel generated addendum documenting the spreadsheet calculations.

Business Probability (Unit 6) – Students use the Internet to research how existing businesses use probability to compare and measure the performance of different products or different product lines. This analysis provides specific examples to demonstrate the presence of probability in daily business decisions. Students present their findings to the class in a visual presentation that combines Excel graphic displays with one other media form (e.g. PowerPoint, video, music).

Financial Portfolio Project (Units 5 – 6) Students design dynamic multivariate financial portfolios that integrate an understanding of random variables, and use them to assess elements of risk on their intermediate and long-term financial futures. Groups of three to five students are assigned a career profile. Income statistics are researched on the web to determine reasonable earnings and savings projections at various age points for members of that career. Students develop two diversified portfolios of stocks and bonds at age 35 years and 55 years. Future portfolio values are projected assuming reinvestment of dividends and interest. Returns for each category of stock are treated as a random variable. The bond segment of the portfolio must be laddered by time and the spreadsheet must incorporate the reinvestment of these funds when bonds come due during the holding period.

Sensitivity analyses are performed to determine a reasonable range of expectations on how the portfolio will perform over 5-year and 20-year holding periods. Each of the students produces a one- to two-page reflection summarizing their findings, their plans for insuring financial stability in their own lives, and what lessons learned in the assignment can be used to reach these financial goals. Each group submits the financial portfolio in poster form with the career visually identified. The 5-year and 20-year spreadsheet projections of future return and asset value are placed in page protectors and attached to the poster with decorative ribbon.

Environmental Workforce Scan (Unit 7) – Students design, present and defend an environmental scan and analyze data to determine a target market, utilizing population, random sampling, probability, and measures of central tendency. This comprehensive Environmental Scan shall include: forecasting business trends, conducting internal and external scans, describing the current workforce, projecting workforce supply and demand, and identifying current and needed competencies (knowledge, skills, abilities and behaviors).

Meaningful Data Inventory (Unit 8) - Students research primary and secondary sources of data relevant to their chosen profession or college major. Through the remainder of the school year, each student maintains an inventory of these resources for future reference in college and/or work. Databases are rated for their reliability, and describe survey and/or experimental design using the proper statistical and business vocabulary. Potential sources of bias and sampling error are also discussed.

Regression & Correlation Assignment (Unit 9) – Students collect stock price data for select businesses and common stock indices. In addition, they research sources of data for the products produced by these companies and their key costs of production. Students perform a series of linear regressions and scatter plots to determine the direction, strength, and form of various relationships between paired data sets. (For instance, students use regression techniques to determine that there is a moderate negative linear relationship between rubber prices and the stock price of Goodyear Tire.) Four of these relationships are presented in a poster for classroom display.

Scatter Plot & LSRL Assignment (Unit 9) – Students construct scatter plots to show the relationship between macroeconomic data and the unemployment rate for the past five years. Students formulate least square regression lines (including consideration of exponential and power models) to determine if a statistically significant relationship exists and if there is causation. Students will predict the unemployment rate for next year. Documentaries and periodicals are reviewed for various views on the financial crisis of 2008. Students synthesize their inquiries into a political poster proposing an element of national financial reform, and prepare to debate their fellow students supporting their views with data and statistical thinking.

Inferential Thinking Project (Second Semester / Units 7 - 10) – Students help serve the data analysis needs of the school community. In collaboration with the school's administrator in charge of data management, students experience the role of statistician in a real world business context they know well – Education.

Student teams are each assigned a department, individual teacher or administrator who will serve as their client. The team members will interview the "client" to determine their data analysis needs. Teams will proceed through all stages of survey and/or experimental design to develop statistical analyses that answer key questions raised by their clients. Data is stripped of personal identifiers before student access is granted. Their findings will be documented in a written report that features the Excel statistical applications learned in the course. Students will be required to incorporate at least one of each of the following inferential procedures: bi-variate regression, confidence interval, significance test for mean, significance test for proportion, and significance test to determine independence.

Business Plan (Unit 10) – Student groups use their statistical and technological skills to develop a business plan for a product or service that includes a mission statement, financial plan, and marketing plan. The business plan is based upon:

Market and financial analysis, including surveys, charts, and demographics

Inferential analysis of potential demand in order to calculate retail price

Linear regression related to monthly sale projections to determine Return On Investment (ROI) and Return On Sales (ROS)

- **Instructional Methods and Strategies**

Lectures, homework assignments, projects and field gathering of data will be the main instructional strategies used in this course. This course will rely heavily on financial simulations and authentic projects to teach fundamental statistical concepts. Inferential reasoning and interpretation will be emphasized over memorization of algorithms and formulae.

Technology and experiential learning opportunities will play a major role in the day-to-day instruction. Students will spend time during each unit working on projects where they collect data through experimentation or online research. Students will use Excel spreadsheet software and online textbook resources to supplement classroom experiences. TI calculator applications will be covered to expand student's future technological options even further. All of these methods allow the students the opportunity to investigate statistical questions of their own choosing and make the material more relevant and more likely to be remembered.

- Direct Classroom Instruction: Structured lectures and reviews, vocabulary activities
- Direct Out-of-Classroom Instruction: Online video instruction available for over 40 Excel tasks and statistical procedures
- Independent Study: Self assessment, database inventory relevant to student career/college plans
- Experiential Learning: Guest speakers, field trips, student written and oral presentation of projects
- Interactive Instruction: Class discussions, team learning activities, teacher-student collaboration
- Indirect Instruction: Reflective discussion, inquiry learning elements present

- **Assessment Methods and Tools**

Formative assessments will be given after most units, and will guide further instruction where appropriate

Regular quizzes will insure student accountability for reading assignments

Comprehensive final exams will be given at the end of the Fall and Spring Semesters

Homework/class work will be assigned to enhance student understanding, most assignments will require students to use Excel software to demonstrate their statistical, business and financial proficiencies.

In-Class and Out-of-Class Projects include:

College Investigation Project developed in the first ten weeks of the course

Student Investment Portfolios submitted individually near the end of the Fall Semester

Participation in GHCHS Collaborative Data Project in the first ten weeks of second semester

Comprehensive Business Plan developed in groups during the last ten weeks of the course

Unit activities and a comprehensive reflective exam are part of the Financial Education For A New Generation program

Reflection, peer review, and inter-class assessment will supplement instructor assessment