

**UNIT OUTLINE**

**Unit Code: BZ201**

**Unit Title: Data Analysis**

**Semester: S**

**Year: 2020**

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| **Unit code** | BZ201 | |
| **Unit name** | Data Analysis | |
| **Associated higher education awards** | Associate Degree in Business  Bachelor of Business | |
| **Duration** | One semester | |
| **Level** | Intermediate | |
| **Unit Coordinator & Lecturer** | Unit Coordinator: Karen du Plessis  Lecturer: Karen du Plessis | |
| **Core/Elective** | Core | |
| **Weighting** | Unit credit points: 10 | Total course credit points:  160 - Associate Degree in Business  240 - Bachelor of Business |
| **Student workload** | **Face-to-face on-site** | **External** |
| Timetabled hours per week: 3  Personal study hours per week: 7  Total workload hours per week: 10  Total hours per unit: 150 | Directed study hours per week: 6  Personal study hours per week: 4  Total workload hours per week: 10  Total hours per unit: 150 |
| Students requiring additional English language support are expected to undertake an additional 2 hour(s) per week. | |
| **Delivery mode** | Face to face on site  External  Full-time  Part-time | |
| **Pre-requisites/ Co-requisites/ Restrictions** | BZ105 Information Systems for Business (Prerequisite) | |
| **Professional registration requirements** | Nil | |
| **Rationale** | “The quiet statisticians have changed our world, not by discovering new facts or technical developments but by changing the ways we reason, experiment, and form our opinions ” - Ian Hacking  Practitioners in many disciplines are often required to deal with observations of variable phenomena and imprecise or approximate measurements. Statistics provide tools, to help to identify the underlying nature of such phenomena, to evaluate the precision of the measurements, to discover the strength of the relationships between the variables and to make predictions about the likelihood of particular events occurring in the future. This unit provides the statistical concepts, methods and skills necessary for students in business to analyse and interpret data.  Students will be introduced to the concepts involved in descriptive and inferential statistics. Topics include the role of statistics in investigation, methods of condensing, displaying, describing and presenting data, elementary descriptive statistics, elementary probability, the binomial, Poisson and normal distributions, single-sample inference, comparison of frequencies, correlation, and inference for two or more samples. An overview of modern applications like Six Sigma and Balanced Scorecard will be presented. To equip students to make meaningful and effective use of information technology for data analysis, concepts in the unit will be applied using Microsoft Excel’s Data Analysis Toolpak. | |
| **Specialist resource requirements** | Practical applications in this unit require Microsoft Excel software with the Megastat add-in and or the Data analysis Plus provided by the text book resources. | |
| **Learning outcomes** | On completion of this Unit, students should be able to:   |  |  | | --- | --- | | **Learning Outcomes** | | | **1.** Discuss the steps involved in the identification and investigation of a business problem | | | **2.** Independently create and interpret visual representations of data | | | **3.** Calculate and independently interpret measures of central tendency and dispersion, and apply them in routine business and management problems | | | **4.** Compute probabilities for mutually exclusive events, dependent and independent events and apply these to routine problems in business and management | | | **5.** Describe the properties of the binomial, Poisson and normal distributions and independently apply them to routine problems in business and management | | | **6.** Discuss statistical inferences based on both single and multiple random samples | | | **7.** Describe the correlation between two sets of variables | | | **8.** Describe the history of and concepts underlying the Six Sigma and Balanced Scorecard approaches to identifying and managing routine problems in business and management | | | **9.** Discuss the Biblical Christian perspective on business with particular emphasis on ethical issues concerning the use of data in business and management | | | **10.** Communicate at an appropriate tertiary standard: with special attention to design elements, grammar, usage, logical relations, style, presentation and referencing | | | |
| **Content** | **1.** What is Statistics?  **2.** Types of data, data collection and sampling  **3.** Graphical descriptive techniques – Nominal data  **4.** Graphical descriptive techniques – Numerical data  **5.** Numerical descriptive measures  **6.** Probability  **7.** Random variables and discrete probability distributions  **8.** Continuous probability distributions  **9.** Statistical Inference: Introduction  **10.** Sampling distributions  **11.** Estimation: Describing a single population  **12.** Simple linear regression and correlation  **13.** Overview of Six Sigma and the balanced scorecard | |
| **Assessment tasks** | A grade of at least 50% overall is required to pass this unit. Students must submit a reasonable attempt at all assessment items. A reasonable attempt will normally be indicated by a minimum of 40% of the total possible marks for that assessment item.  **Task 1** Mid-semester test  Word Length/Duration: 2 hours  Weighting: 30%  Learning Outcomes: 1-5  Assessed: Y - 2019, S - 1, W - 6  **Task 2** Review exercises (10)  Word Length/Duration: 150 words each (excluding calculations)  Weighting: 10% (1% each)  Learning Outcomes: 1-10  Assessed: Y - 2019, S - 1, W - 2-12  **Task 3** Project  Word Length/Duration: 500 words, excluding calculations  Weighting: 20%  Learning Outcomes: 1-10  Assessed: Y - 2019, S - 1, W - 13  **Task 4** Final examination (Students are permitted only writing instruments and one double-sided A4 page of their own typed or handwritten notes.)  Word Length/Duration: 3 hours  Weighting: 40%  Learning Outcomes: 1 - 9  Assessed: Y - 2019, S - 1, W - 15 or 16 | |
| **Prescribed text(s)** | *Note: Students are expected to purchase or have access to the prescribed text(s).*  Selvanathan, A., Selvanathan, S., & Keller, G. (2017). *Business statistics: Abridged - Australia New Zealand with student resource access for 12 months* (7th rev. ed.). South Melbourne, VIC: Cengage Learning. ISBN 9780170369473  Additional reading will be supplied via the Moodle™ web page for this unit. | |
| **Recommended readings** | **Books**  *Note: The following books are available for loan from the CHC library - purchase is optional.*  Bluman, A.G. (2018). *Elementary Statistics: A Step-by-step Approach* (10th ed.). New York, NY: McGraw-Hill.  Carlberg, C. (2016). *Regression Analysis Microsoft Excel.* New York, NY: Pearson Higher Ed USA.  Kahneman, D. (2012). *Thinking, fast and slow.* London, UK: Penguin Random House UK.  McFedries, P. (2016). *Excel 2016 Formulas and Functions.* New York, NY: Pearson Higher Ed USA.  Oakshott, L. (2016). *Essential quantitative Methods.* London, UK: Palgrave Macmillan.  Salkind, N.J. (2015). *Excel Statistics: A Quick Guide.* Los Angeles, CA: SAGE Publications Inc USA  Silver, N. (2015). *The Signal and the Noise: Why So Many Predictions Fail – But Some Don’t.* London, UK:Penguin Press  Triola, M.F. (2014). *Elementary Statistics Using Excel: Pearson New International Edition* (5th ed.).New York, NY: Pearson Higher Ed USA.  **Websites**  Huff, D and DePuy B. (2016). How to Lie with Statistics. Aubooks.com http://audiobooks.com/publishing/how-to-lie-with-statistics.html  In addition to the resources above, students should have access to a Bible, preferably a modern translation such as The Holy Bible: The New International Version 2011 (NIV 2011) or The Holy Bible: New King James Version (NKJV).  These translations and many others may be accessed free on-line at http://www.biblegateway.com. The Bible app from LifeChurch.tv is also available free for smart phones and tablet devices. | |