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| **Descriptive Statistics** |
| |  |  | | --- | --- | | **Setting:** | Seminar, class size approximately of 30 - 40. | | **Preparation duration:** | 40 - 50 minutes. | | **Level:** | Levels 4 - 7 | | **Activity duration:** | 45 - 50 minutes. | | **Additional guidance:** | Lecturer can refer to one published blank questionnaire. | | **Outcomes:**   * Link of descriptive statistics with the data analysis of in a statistical study * Explain Descriptive Statistics. * Explain Inferential Statistics. * Apply Descriptive Statistics for a particular case. | | | **Pre-task preparation:**   * Refer to Notes on (Descriptive Statistics and Inferential Statistics) in Reference 4. * Descriptive Statistics is a part of data analysis, which is the third component of the statistical problem solving cycle. See Resource 1 * Descriptive Statistics (methods used to summarise and describe your observations). For more details see Reference 3 * Inferential Statistics (methods used to make estimations or predictions from our observations). For more details see Reference 3 | |   **Steps to implement the activity:**   1. Set the learning objectives of the session. 2. Give a copy of the set of data. (See Resource 2). 3. Ask students to complete the task on Descriptive Statistics. 4. Advise students to sort the data before any calculation. 5. Next, display the sorted data on the whiteboard. 6. Show the flowchart of the averages (see Reference 3). 7. Then ask students to calculate the range, mode and median. 8. Show the answers on the withboard. 9. Ask students to find the total by adding all the data. 10. Then ask them to calculate the mean. 11. Then ask students to calculate the variance and the standard deviation by using scientific calculator or Excel spreadsheet. 12. Next, ask students to find the lower quartile (25% of data) noted LQ and the upper quartile (75% of data) noted UQ. 13. Then ask them to calculate the inter-quarter range (UQ – LQ) noted IQR. 14. Set a table of 5 columns and 2 rows. See Resource 3 15. Then ask students to draw a graph paper the box-plot diagram for the data provided. 16. Interpret this graph and comment about the data skewness. Resource   **Guidance**  **On the types of statistics**  There are two types of Statistics.  .   * + **Descriptive Statistics** (methods used to summarise and describe your observations).   + **Inferential Statistics** (methods used to make estimations or predictions from our observations).   **References**   1. The Higher Education Academy, *Guide to Statistics: Supporting Statistics in Medicine*. <https://www.sheffield.ac.uk/polopoly_fs/1.43825!/file/Supporting-statistics.pdf> 2. Greenhalgh, T. (2014). Statistics for the non-statistician in *How to read a paper: The Basics of Evidence-Based Medicine*, 5th ed. John Wiley & Sons Ltd., pp. 60 – 77; 2nd edition open access <https://www.ebcp.com.br/simple/upfiles/livros/001HTRP.pdf> 3. Rowntree, D. (2018) *Statistics without tears: an introduction for non-mathematicians.* 4th ed. London: Penguin Books. 4. <https://statistics.laerd.com/statistical-guides/descriptive-inferential-statistics.php> |