

DALITE Q4 - Normal Curve Calculations and Confidence Intervals. Due October 1, 2019 by 5pm.

EPIB607 - Inferential Statistics^a

^aFall 2019, McGill University

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This DALITE quiz will cover the normal curve calculations and confidence intervals.

Normal calculations | Confidence intervals | Central Limit Theorem (CLT)

Marking

Completion of this DALITE exercise will be available to us automatically through the DALITE website. Therefore **you do not need to hand anything in**. Marks will be based on the number of correct answers. For each question you will receive 0.5 marks for getting the correct answer on the first attempt and an additional 0.5 marks if you stick with the right answer or switch to the correct answer after seeing someone else's rationale. Recall that access to your assignments is managed through tokens sent to your e-mail address. You will be sent a new link everytime a new assignment has been posted.

1. Normal Calculations

1.1. Learning Objectives.

1. Be able to use the Empirical Rule (68-95-99.7% Rule) to approximate the proportions of normal data falling in certain intervals.
2. Understand that standardizing (by subtracting the mean and dividing by the standard deviation) allows us to compare observations from different normal distributions.
3. Know that in order to use a standard normal table to do calculations involving normal distributions, we must first standardize measurements.
4. Be able to use `pnorm` and `qnorm` to find the proportion of observations below any value of z .

1.2. Required Readings.

1. [Against All Odds Unit 8, pages 1-12](#)

2. Confidence Intervals

2.1. Learning Objectives.

1. Understand that a common reason for taking a sample is to estimate some property of the underlying population.
2. Recognize that a useful estimate requires a measure of how accurate the estimate is.
3. Know that a confidence interval has two parts: an interval that gives the estimate and the margin of error, and a confidence level that gives the likelihood that the method will produce correct results in the long range.
4. Be able to assess whether the underlying assumptions for confidence intervals are reasonably satisfied. Provided the underlying assumptions are satisfied, be able to calculate a confidence interval for μ given the sample mean, sample size, and population standard deviation.
5. Understand the tradeoff between confidence and margin of error in intervals based on the same data.
6. Given a specific confidence level, recognize that increasing the size of the sample can give a margin of error as small as desired.

2.2. Videos.

1. [Against All Odds Unit 24](#)

2.3. Required Readings.

1. [Against All Odds Unit 24, pages 1-6](#)
2. [JH notes on CIs](#)
3. De Veaux, Velleman and Bock (DVB), Chapter 19 and Chapter 23