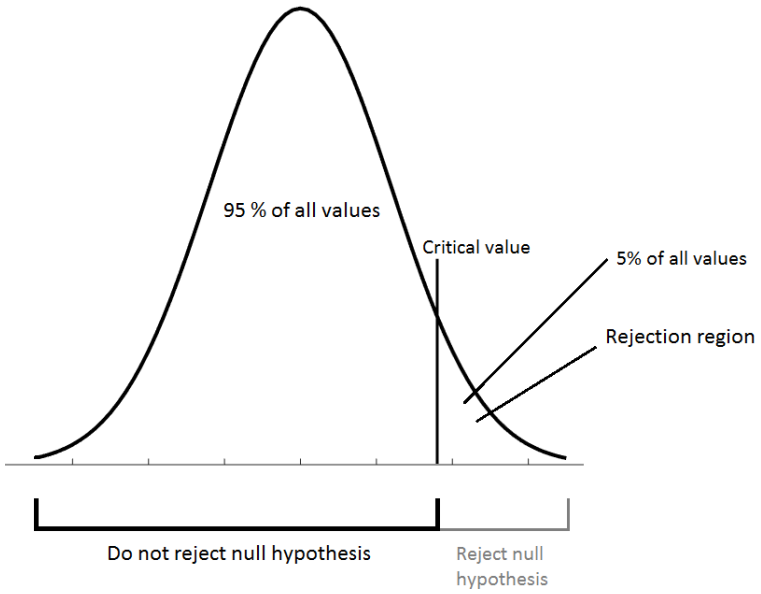
UNIVERSITY OF STRATHCLYDE
DEPARTMENT OF MATHEMATICS & STATISTICS

MM104: Statistics and Data Presentation Semester 2
MM107: Statistics and Data Presentation

How to find a critical value using the statistical tables.



Two sample t-test

1. Calculate the degrees of freedom i.e. $n_1 + n_2 - 2$
2. Determine if the test is one or two tailed.
3. Find out the significance level of the test this is usually 5 % (0.05).
4. Go to your tables and find the student's t page.
5. If it is a two tailed you need to look at the column which is half of your significance level. If it is one tailed then you need to look at the column equal to your significance level.
6. Note down the critical value.
7. Based on this critical value decide whether to reject or fail to reject the null hypothesis - you may find it useful to use the diagram above..

What if my degrees of freedom isn't on the table ?

You need to look at the critical values for the closest degrees of freedoms above and below your degrees of freedom e.g. if you were doing a t-test and your degrees of freedom was 42, you'd need to look at the values for 40 degrees of freedom and 50 degrees of freedom.

- If the test statistic is larger than the largest critical value then we reject the null hypothesis.
- If the test statistic is smaller the smallest critical value then we fail to reject the null hypothesis.
- If the test statistics is in between the two critical values then you can't draw a conclusion without a more accurate critical value.

χ^2 test

1. Calculate the degrees of freedom i.e. $(r-1)(c-1)$
2. Find out the significance level of the test this is usually 5 % (0.05).
3. Go to your tables and find the χ^2 page.
4. Find the appropriate column and row intersection for your degrees of freedom and critical value.
5. Note down the critical value.
6. Based on this critical value decide whether to reject or fail to reject the null hypothesis - you may find it useful to use the diagram above.