INF5830, 2015, some statistical formulas

Z-score

Given a normal distribution with mean μ and standard deviation σ. The Z-score of a data point x

$$Z = \frac{x - \mu}{\sigma}$$

expresses the distance of x from μ in terms of standard deviations.

t-test

The t-statistics

$$t = \frac{\bar{x} - \mu}{\sqrt{\frac{s^2}{n}}}$$

where

- $\bar{x}$ is the mean of a simple random sample
- n is the size of the sample
- s is the sample standard deviation

Two sample t-test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Standard deviation of proportion

When p is a proportion $\frac{k}{n}$ (k successes out of n), the variance is

$$p(1 - p)$$