

## OVERVIEW OF STATISTICAL TESTS

### Comparing two means – t-tests

- a) ONE SAMPLE T-TEST – test of a mean in one sample against a given value (a parameter, a scale middle value etc.)

assumptions:

- at least interval level of measurement
- normal distribution

non-parametric alternative: Wilcoxon test

- b) independent samples t-test – test of difference in means between two independent samples

assumptions:

- at least interval level of measurement
- normal distribution within groups – robust for  $N_1 > 30$  &  $N_2 > 30$
- homoscedascity – homogeneity of variances, i.e. no significant difference between variances of the two groups, robust for if  $N_1 = N_2$
- independence of measurements (independence of the groups)

non-parametric alternative: Mann-Whitney U test

- c) paired samples t-test – test of difference in means between two paired (dependent) samples

assumptions:

- at least interval level of measurement
- normal distribution within groups – not necessary if  $N_1 > 30$  &  $N_2 > 30$
- homoscedascity – homogeneity of variances, i.e. no significant difference between variances of the two groups, not necessary if  $N_1 = N_2$
- paired samples – either pairs (couples, siblings etc.) or repeated measures design (i.e. test-retest – testing the same group before and after an intervention)

non-parametric alternative: Wilcoxon test

### Comparing three and more means – ANOVA

ANOVA – analysis of variance

(a parameter, a scale middle value etc.)

assumptions:

- at least interval level of measurement
- normal distribution within groups – robust for  $N_1 > 30$  &  $N_2 > 30$
- homoscedascity – homogeneity of variances, robust for if  $N_1 = N_2$
- independence of measurements

non-parametric variant: Kruskal-Wallis test