**Overview of statistical tests**

**Comparing two means – t-tests**

1. 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

1. 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 N1>30 & N2>30
* homoscedascity – homogeneity of variances, i.e. no significant difference between variances of the two groups, robust for if N1=N2
* independence of measurements (independence of the groups)

non-parametric alternative: Mann-Whitney U test

1. 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 N1>30 & N2>30
* homoscedascity – homogeneity of variances, i.e. no significant difference between variances of the two groups, not necessary if N1=N2
* 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 N1>30 & N2>30
* homoscedascity – homogeneity of variances, robust for if N1=N2
* independence of measurements

non-parametric variant: Kruskal-Wallis test