Topics for the theory part:

Paired t-test:

How would you conduct an experiment so that the results can be analysed with a paired t-test?
How would you do it so that the results can be analysed with a 2-sample t-test?

Correlation:

Multivariate distributions, bivariate normal distribution
dependent, independent random variables
covariance and correlation of random variables
sample covariance, sample correlation coefficient (Pearson correlation coefficient)

Regression:

assumptions of the regression
checking the assumptions, residual analysis
confidence band vs. prediction band

Factorial designs:

orthogonality
interactions
transformed scale vs. original scale
model reduction
Pareto principle
statistical significance vs. practical significance