Although you are responsible for all material taught in Statistics 141/151 here is checklist of the 141/151 material that I assume you already know going into Stat 337.

Introduction
- a) Population vs. Sample
- b) Parameter vs. Statistic
- c) Descriptive vs. Inferential Statistics

Sample Data
- a) Categorical vs. Numerical Data
- b) Discrete vs. Continuous numerical data
- c) Observational Studies vs. Randomized Experiments
- d) Confounding Variables
- e) Sampling Techniques (Simple Random Sample)
- f) Types Sampling Bias (Response, Selection, Non-response), and their effects.

Graphical Methods
- a) Frequency, Relative Frequency (distribution)
- b) Histogram, Boxplot, Scatterplot
- c) Describing these plots (shape, skew, center, spread, outliers, etc.)

Numerical Measures
- a) Mean, Median
- b) Proportion
- c) Standard Deviation, Variance
- d) Quartiles, Interquartile range, outliers
- e) Z-scores
- f) Percentiles
- g) The Empirical Rule

Probability and Sampling Distributions
- a) What is a probability?
- b) Population Distribution
- c) Discrete vs. Continuous variables
- d) Density curve
- e) Normal distribution
- f) Standardized variable, z-score
- g) Standard normal distribution
- h) Sampling Distributions
- i) Sampling variability
- j) Sampling Distribution
- k) Central Limit Theorem
- l) Sampling Distribution of the sample mean
- m) Sampling Distribution of the sample proportion

One Sample Inference for the Population Mean
- a) The t-distribution
- b) Confidence Intervals for the Population Mean
- - Point Estimate
- - Unbiased Statistic
- - Confidence Level

- Standard Error
- Critical values
- Sample Size Calculation

c) Hypothesis Testing for the Population Mean
- Null and alternative hypothesis
- 1-sided and 2-sided tests
- Type I error, type II error
- Level of significance
- Test Statistics
- P-value

Two Sample Inference for the Difference in Population Means

a) Confidence Intervals for the difference in population means: paired samples, independent samples.

b) Hypothesis testing for the difference in population means: paired samples, independent samples.

Simple Linear Regression

a) Scatter Plots
b) Pearson's Correlation
c) Fitting a line: Least Squares method
d) Coefficient of determination.
e) Standard deviation about the line.
f) Population regression model
g) Assumptions of Simple linear regression
h) Estimating the population regression line
i) Sampling distribution of b (the estimated slope)
j) Confidence intervals and hypothesis testing for beta (the true population slope)
k) Confidence intervals for the mean response.

ANOVA

a) The F-test.
b) Assumptions
c) Sum-of-squares residuals
d) Degrees of freedom for different sources of variation
e) F distribution
f) ANOVA tables