# Stat 305 C - Final Topic Outline

The final exam is comprehensive, so all topics from Exam 1 and Exam 2 are also relevant. The following topics will be emphasized.

1. Random intervals
2. One-sample inference (confidence intervals and hypothesis testing) on the mean (Ch. 6.1, 6.2)
    - under each of the following conditions:
        - i) When $n \geq 25$ and $\sigma^2$ is known.
        - ii) When $n \geq 25$ and $\sigma^2$ is unknown.
        - iii) When $n < 25$ and $\sigma^2$ is unknown.
    - All the above using:
        - i) Confidence intervals
        - ii) Critical values & p-values
3. Inference for paired data under all the conditions in pt 2. (Ch. 6.3)
4. Inference for 2-sample data under all the conditions in pt 2 for each sample (Ch. 6.3)
5. Inference for simple linear regression (Ch. 9.1)
    - Confidence intervals and hypothesis testing on $\beta_0$ and $\beta_1$
    - How to estimate $\sigma$
    - Inference for the mean response $\mu_{y|x}$
6. Inference for simple multiple regression (Ch. 9.2)
    - Confidence intervals and hypothesis testing on $\beta_0, \ldots, \beta_{p-1}$
    - How to estimate $\sigma$
    - Inference for the mean response $\mu_{y|\boldsymbol{x}}$