List of Background Knowledge for STAT 445[*]

STAT 200

- Sample and Population
- Estimate and Parameter
- Sampling Distributions of Statistics
- Standard Errors of Estimators
- Confidence Intervals for Parameters
- Tests of Hypotheses Concerning Parameters

MATH/STAT 302

- Probabilistic Models
- Properties of Normal, Binomial, and Poisson Distributions
- Moments of Linear Combinations of Random Variables
- Distributions of (Simple) Functions of Random Variables
- The Central Limit Theorem

STAT 305

- Likelihood Functions
- Maximum Likelihood Estimation
- Asymptotic Properties of Maximum Likelihood Estimators
- Likelihood Ratio Tests
- The Delta Method

STAT 306

- Basic Theory of the Multiple Linear Regression Model
- Relation Between Least Squares, Weighted Least Squares, and Maximum Likelihood
- ANOVA Decomposition for Multiple Linear Regression Models
- Partitioning of SS Residual into SS Lack-of-Fit and SS Pure Error
- Diagnostics for Multiple Linear Regression Models
- Model Selection via Testing Nested Models

PLUS:

- Enough knowledge of R or S-PLUS to carry out the related basic statistical computations (especially those for STAT 306)

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[*]Taken from Dr. Petkau's handouts for STAT 445 in Spring 2003.