AI Generated Study Notes

Logistic Regression: Brief Overview

* **Purpose:** Predicts the probability of a binary outcome (0 or 1). Instead of predicting the outcome directly like linear regression, it predicts the *chance* of a specific outcome.
* **Sigmoid Function:** Transforms the linear equation's output to a probability between 0 and 1. This 'S-shaped' curve is crucial.
* **Key Parameters:** Coefficients (like slopes in linear regression) determine the impact of each input feature. An intercept is also present.
* **Cost Function:** Measures the difference between predicted probabilities and actual outcomes. Commonly uses log-loss.
* **Optimization:** Algorithms like Gradient Descent find the best parameters that minimize the cost function.
* **Evaluation:** Metrics like accuracy, precision, recall, F1-score, and AUC-ROC assess model performance.
* **Key Assumptions:**
    * Binary outcome variable.
    * Little or no multicollinearity among predictor variables.
    * Linear relationship between predictors and the log-odds of the outcome.