Unit 11: Logistic Regression

Case Studies:

- To introduce the concept of **simple logistic regression,** we will examine the relationship between a:
  - **Categorical response variable:** support for a certain opinion (favor/not in favor) and an
  - **Explanatory variable:** sex.
- To introduce the concept of **multiple logistic regression,** we will examine the relationship between a:
  - **Categorical response variable:** support for a certain opinion (favor/not in favor) and a
  - **Explanatory variables:**
    - Sex and
    - Age

Summary of Concepts:

- **Research questions we will be able to answer**
  - **Categorical Response + Some Explanatory Variables**
    - Is there a linear association between the interaction of two explanatory variables and a response variable?
- **Definitions/Properties**
  - Odds
  - Log-Odds
- **Descriptive Analytics**
- **Modeling**
  - Categorical response variable and one or more explanatory variables
    - Fit a logistic regression model
      - Interpret the slopes of this model.
      - Interpret e^(slope) of this model.
- **Inference**
  - Categorical response variable and one or more explanatory variables
    - Conduct inference on the slopes of a logistic regression model
    - Conduct inference on e^(slopes) of this model.