Introduction to Statistics

Jerome Dumortier

Uncertainty, Probability, and Statistics in Everyday Life

Grades

- ▶ Uncertainty surrounding class grade during a semester
- ▶ Association of probabilities with each grade

Fire station calls

- ▶ Number and location of calls
- ▶ Number of fire trucks and other vehicles required

Two outcomes does not mean a 50% chance for each to happen

- ▶ Success of a free throw by Stephen Curry
- ▶ Flight delay due to fog

Netflix - Recording of all activities, e.g., browsing, pausing, rewinding - 75% of viewings are based on recommendations by Netflix - Do You Know When You Were Hooked? Netflix Does

Some Examples of Statistics in the News I

Election outcomes

- ▶ 2016 U.S. Presidential Election
  - ▶ FiveThirtyEight 2016 Election Forecast (chance of winning): Donald J. Trump 28.6%
  - ▶ One explanation for the surprising result
- ▶ 2002 French Presidential Election
  - ▶ Two-stage election
  - ▶ Final round: Jacques Chirac (82.2%) and Jean-Marie Le Pen (17.8%)

Some Examples of Statistics in the News II

Evolution of the stock market

- ▶ Importance of correlation among stocks and mutual funds Path of a hurricane:
    - ▶ Sandy (National Weather Service NWS)
    - ▶ Sandy (National Oceanic and Atmospheric Administration NOAA)

Slide with Plot