

# Data Driven Decision Making: Introduction

*GSBA 545, Fall 2021*

*Professor Dawn Porter*

*"Statistics are like a drunk with a lamppost: used more for support than illumination."*

– Winston Churchill

## What is the field of Statistics?

A body of principles and methods to:

- Extract useful information from data
- Assess the reliability of that information
- Measure and manage risk
- Make decisions in the face of uncertainty

## Why study Statistics?

To help you:

- Understand the quantitative side of business disciplines
- Make better management decisions
- Gain a competitive advantage
- Support business choices

## Accounting

Public accounting firms use statistical sampling procedures when conducting audits for their clients.

## Economics

Economists use statistical information in making forecasts about the future of the economy or some aspect of it.

## Finance

Financial advisors use price-earnings ratios and dividend yields to guide their investment advice.

## Marketing

Electronic point-of-sale scanners at retail checkout counters are used to collect data for a variety of marketing research applications.

## Production

A variety of statistical quality control charts are used to monitor the output of a production process.

## Information Systems

A variety of statistical information helps administrators assess the performance of computer networks.

## Objectives

- Practical significance of each class

## Lectures

- First source of information; they will let you know what is important for the course.

## Textbook readings

- Stine & Foster, *Statistics for Business: Decision Making and Analysis*, 3<sup>rd</sup> ed, Pearson Publishing (S&F).

## In-class/optional practice problems

- Solidify class concepts

## First half of the course

### Descriptive & Inferential Statistics

- Descriptive Statistics/Graphs
- Probability & Discrete Distributions
- Continuous Distributions
  - Uniform, Normal, Exponential & Poisson
- Sampling, Estimation & Confidence Intervals
- One & Two-Sample Hypothesis Testing
  - Means
  - Proportions

## Second half of the course

### Multivariate Statistics

- Categorical Data Analysis
- Correlations & Portfolios
- Simple Linear Regression
- Multiple Linear Regression
  - Nonlinear relationships
  - Indicator variables

# Requirements & Grades

- |                                     |       |
|-------------------------------------|-------|
| ■ 3 Group Assignments (5% each)     | ■ 15% |
| ■ Final Group Regression Assignment | ■ 10% |
| ■ Two Quizzes (20% each)            | ■ 40% |
| ■ Final Exam                        | ■ 35% |