Course Map

Stat 50 Introduction to Probability and Statistics

Clark Fitzgerald

Course Outcomes:

(from sample department syllabus)

CO1 Understand the basic principles of probability including the laws for unions, intersections, and complementation, Bayes theorem and use these principles in problem solving situations.

CO2 Understand the definitions of discrete, continuous, and joint random variables, compute the mean, variance and covariance of random variables, know the definition of density and distribution function of a random variable and be able to find one from the other, and be able to find the marginal density and distribution functions from the joint density function.

Dates: day 1

Topic: Introduction

Objectives:

- students have positive impression of course
- students can navigate course
- students have clear understanding of course structure, when assignments are due, etc.
- students know how instructor will communicate with them
- students know how to reach instructor and get questions answered
- students set up appropriate Canvas notifications
- students are motivated to turn on audio and video
- students understand when we will hold syncronous classes

Activities:

- Icebreaker? Perhaps introduce 1-2-3-go activity to test student's intuition about some unintuitive statistical concepts.
- Motivation? Speech on how statistics is an essential component of data science?
- Live instructor demo of site navigation and Canvas notifications.

Materials:

- Canvas login
- ability to record and upload video

Assessments/Deliverables:

- students upload introductory video

Dates: day 2-3

Topic: Sample spaces & Summary Statistics

Objectives:

- distinguish sample from population
- identify simple random sample in several random sampling schemes
- calculate sample mean, median, mode, range, and percentiles

Activities:

- read section 1.1 & 1.2
- *TODO: think of something creative and interactive.*
- video lectures

Materials:

- Canvas quiz
- McGraw Hill Connect login

Assessments/Deliverables

- HW 1
- Quiz 1 *TODO: I need to come up with a more sound strategy for assessment.*

Dates: day 4-6

Topic: Graphical Summaries

Objectives:

- construct boxplots, histograms, and scatterplots from data
- interpret boxplots, histograms, and scatterplots by inferring statistics such as range, percentiles, and correlation

Activities:

- read section 1.3
- video lectures

Assessments/Deliverables

- HW 2
- Quiz 2