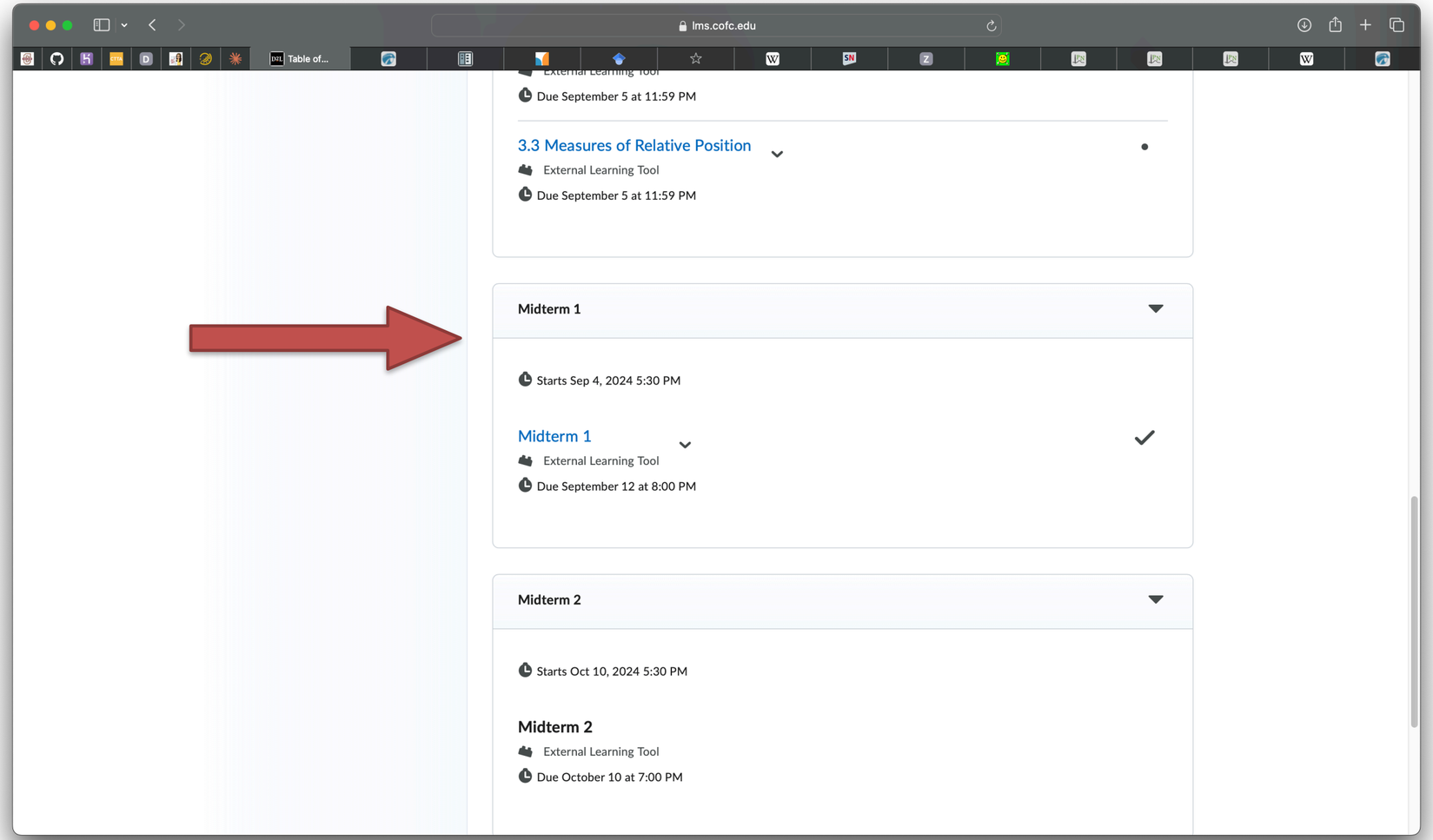
COLLEGE OF CHARLESTON

Midterm 1 Review

Math 104-03: Elementary Statistics

Thursday September 12th

- Midterm 1 is take-home
- No collaborating
- Opens at 5:30pm, Closes 7pm
- 1 hour to answer questions



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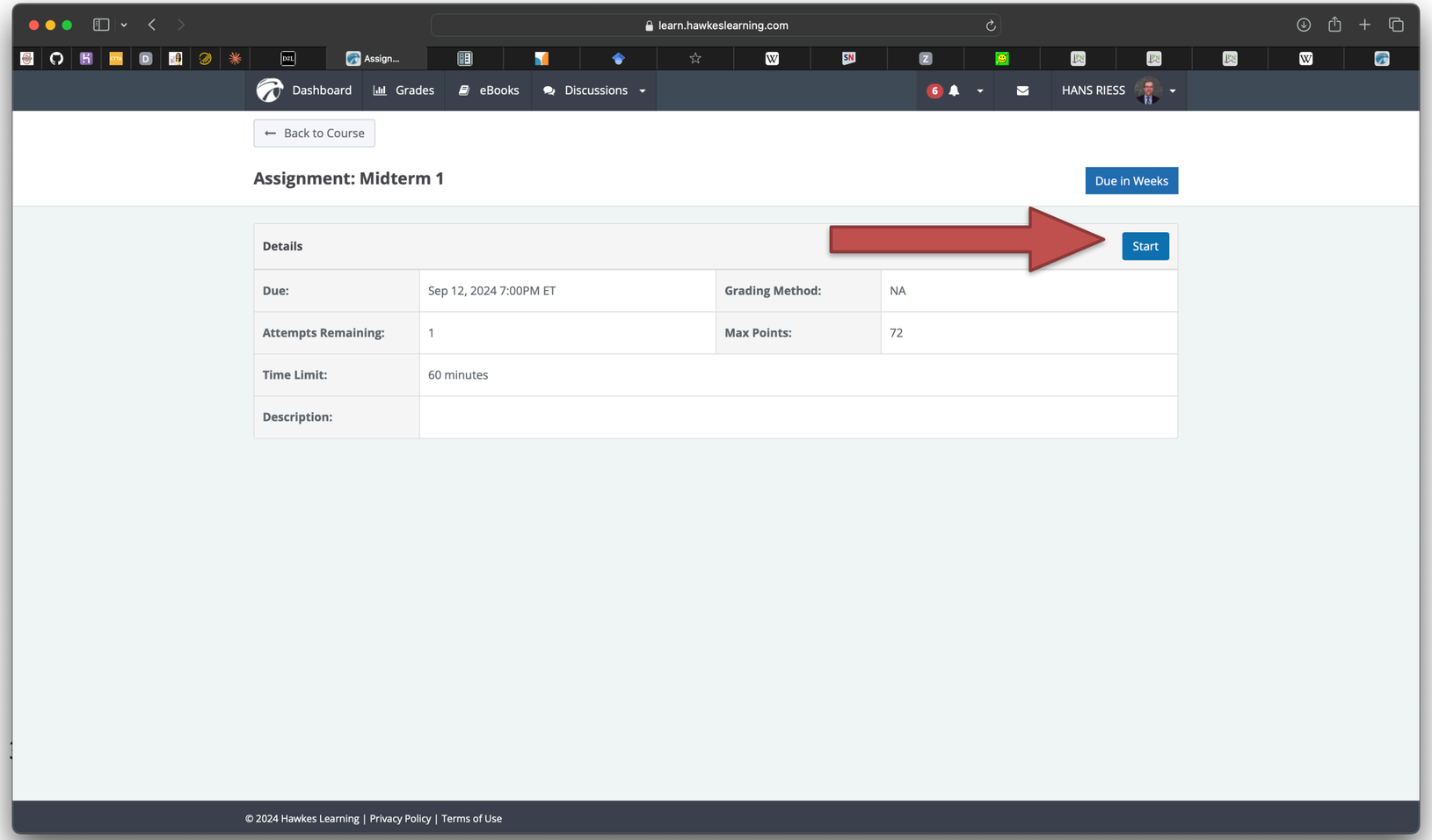


Chapter 1

- What to study:
  - Know the difference between **descriptive** and **inferential** statistics
  - Identify the **population** and a **sample**
  - Know difference between **qualitative** and **quantitative** data
  - Know the difference between **continuous** and **discrete** data
- Study questions:
  - Identify the population in the following statement: “The price of cars of a sample of 10 cars at a local dealership.”
  - Does the statement describe a sample or population: “The residents of the state of South Carolina.”
  - Identify if the data type is continuous or discrete: the heights of students in our class.
  - Identify if the data type is continuous or discrete: the number of siblings of students in our class.

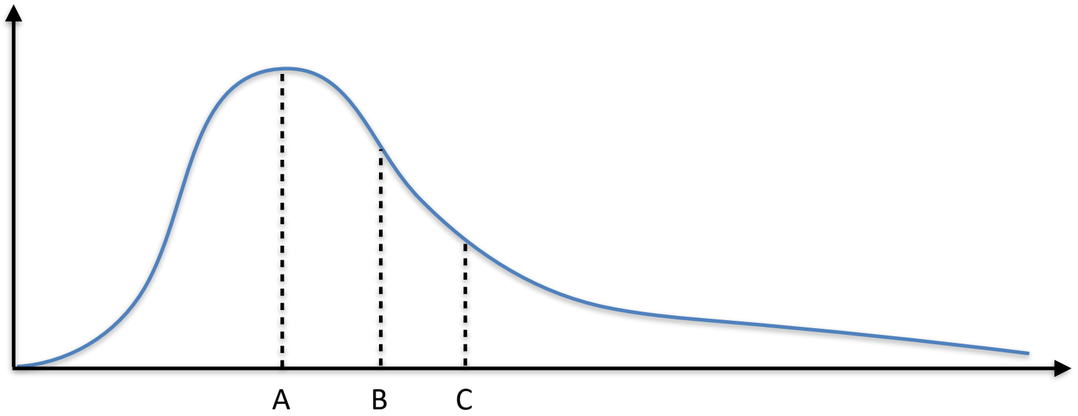
Chapter 2

- Be able to determine the frequency of each class from a table.
- Be able to answer questions about a histogram
- Do NOT need to know to calculate class boundaries and midpoints
- Identify shapes of a graph
  - uniform, symmetric, skewed to the left, skewed to the right
- **Study question**:
  - The following describes percentage of satisfied customers. Determine the frequency of each class in the table below:
    78.6, 80.8, 90.0, 88.4, 93.6, 80.1,
    83.2, 80.8, 86.0, 80.0, 77.6, 80.0,
    86.7, 88.4, 86.2, 78.0, 85.8, 76.4

Class	Frequency
76.0 - 79.9	
80.0 - 83.9	
84.0 - 87.9	
88.0 - 91.9	
92.0 - 95.9	

Chapter 3

- Be able to calculate the sample mean and median from a small data set
- Be able to determine the mode (if it exists) and if the data is
  - unimodal, bimodal, multimodal, or has no mode
- Be able to determine the relative position of the mean, median and mode
- **Study question**: for the graph shown, determine which letter represents the mean, the median, and the mode. Letters may be used more than once.



Chapter 3

- Be able to calculate the sample variance, sample standard deviation, and range from a small dataset
- Be able to answer questions about a box plot
- Be able to calculate z-scores
- Be able to find the value corresponding to the Pth percentile from a small dataset
- **Study question**: given a set of data in which the sample mean is $\bar{x} = 52.4$ and the sample standard deviation is $s = 4.9$, calculate the z-score given that $x = 69.7$?

Chapter 4

- Understand the terminology: sample space, outcome, event
- Identify values that could be probabilities
- Write down the sample space for a simple experiment
- Calculate the probability of an event when all outcomes are equally likely to occur
- Apply the complement rule to calculate probabilities
- Apply the addition rule, as well as the addition rule for mutually exclusive events
- Apply the multiplication rule, as well as the multiplication rule for independent events
- **Study question**: two standard six-sided die are rolled. What is the probability of not rolling doubles?