Stat 235

Lab 1

Arun Woosaree

TA: Jessa Marley

# 1

## a.

## b.

All the histograms above appear to be slightly left-skewed.

By simply looking at the histograms, only one peak is observable in each of them, therefore all the histograms above are single-peaked

There don’t seem to be any obvious outliers judging from the 3 histograms above. At first glance, the one data point that has a thickness of 33 Å at 800 ℃ may seem like a potential outlier, but when looking at the bigger picture in the histogram, we can see that it (in bin 34) is not visually far away from the bulk of the data

## c.

The first histogram has a center around 44, and a spread of 10.

The second histogram has a center about 42 and a spread of 10 as well.

The third histogram has a center around 40, and also has a spread of 10.

For all 3 histograms, the means are slightly less than their respective medians.

## d.

It would appear that increased temperature results in an overall lower average of thickness of the films.

## 2

## a.

|  |  |
| --- | --- |
| Thickness at 400 ℃ | |
| Mean | 43.65 |
| Standard Deviation | 2.70039 |
| Sample Variance | 7.292105 |

|  |  |
| --- | --- |
| Thickness at 800 ℃ | |
| Mean | 39.7 |
| Standard Deviation | 2.716421795 |
| Sample Variance | 7.378947368 |

|  |  |
| --- | --- |
| Thickness at 800 ℃ | |
| Mean | 39.5 |
| Standard Deviation | 2.704771612 |
| Sample Variance | 7.315789474 |

## It seems that an increase in temperature results in a lower mean, however, the standard deviation appears to mostly remain the same

## b.

|  |  |
| --- | --- |
| 600 ℃ | |
| Q1 | 38 |
| Q2 | 40 |
| Q3 | 41.25 |
| IQR | 3.25 |

|  |  |
| --- | --- |
| 800 ℃ | |
| Q1 | 38 |
| Q2 | 40 |
| Q3 | 41 |
| IQR | 3 |

|  |  |
| --- | --- |
| 400 ℃ | |
| Q1 | 42 |
| Q2 | 44 |
| Q3 | 45.25 |
| IQR | 3.25 |

## The 400 ℃ one doesn’t seem to match, but for 600 ℃ and 800 ℃, the positions of the quartiles seem to support the conclusion that these histograms are left-skewed, since Q1 is further from the median than Q3 is.

## c.

# 3

## a.

## b.

## c.

# 4