

ECE 341 - Homework #15

F-Test and ANOVA.

F-Test

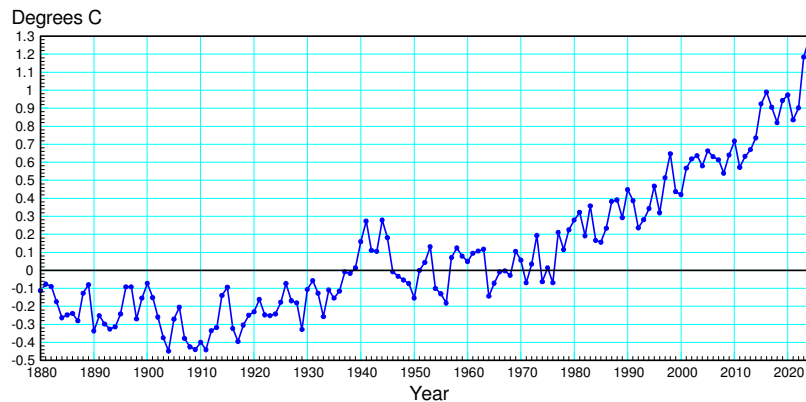
1) The resistances of 1k 5% tolerance resistors were measured:

A: 989, 996, 993, 991, 993, 991, 997, 996, 995, 995, 991, 997, 1008, 995
B: 996, 995, 996, 995, 998, 996, 995, 990, 981, 988, 994, 999, 990, 992
C: 997, 992, 995, 994, 990, 990, 994, 992, 996, 992, 992, 994, 995, 988

Run and F-test to determine if there is a difference between the variance of

- Population A and B
- Population A and C

The global land and ocean temperature anomalies have been measured by NOAA since 1880



2) Use the data from 1960-2025, use an F-test to determine if temperatures are rising in a linear fashion:

- $H_0: T = a$
- $H_1: T = a + by$

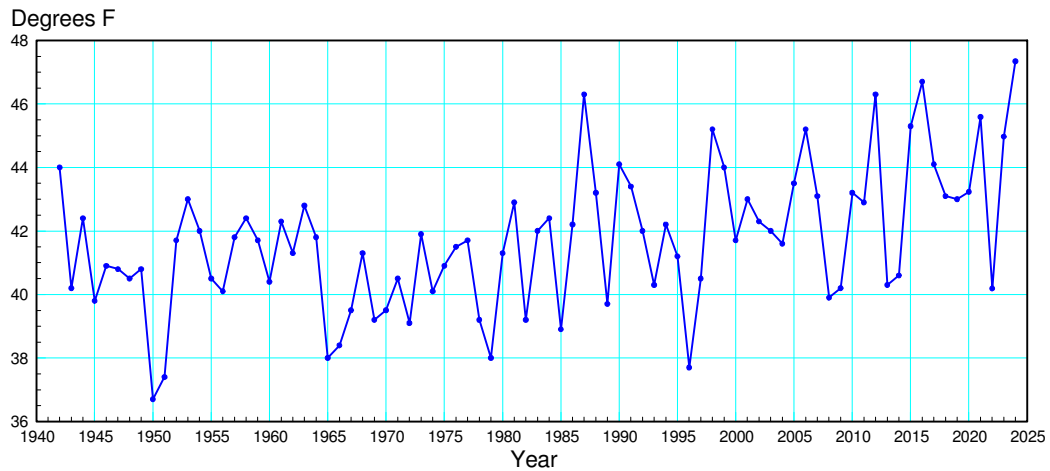
3) Use the data from 1960-2025, use an F-test to determine if temperatures are rising at an increasing rate:

- $H_0: T = a + by$
- $H_1: T = a + by + cy^2$

ANOVA

4) For the three populations of 1k resistors in problem #1, run an ANOVA test to see if the means of these resistors are different

5) The average temperature in Fargo has been reported by Hector airport since 1942



Use ANOVA to determine if the mean temperature in Fargo is different over the following time spans:

- A: 1942-1970
- B: 1980-2000
- C: 2010-2025