

ECE 341 - Homework #13

t-Tests. Due Wednesday, June 10th

Test of a Single Population: Full-House in Draw Poker

The calculated odds of a full house in 5-card draw are $p = 0.144\%$. Verify whether this is / is not correct with a probability of 90%

- 1) Run a Monte Carlo simulation to determine the odds of getting a full-house in 5-card draw
 - Each simulation goes through 10,000 hands (# of full houses in 1,000 hands of poker)
 - Run the simulation 5 times
 - $\text{data} = \{ x_1, x_2, x_3, x_4, x_5 \}$

From this, determine the 90% confidence interval for the actual odds of getting a full-house with 5-card draw.

- if $p = 0.144\%$ is in this interval, you cannot reject this answer with a probability of 90%

In-Person vs. Online

2) Data from Fall 2021 is below. Use a t-test to determine if students who take a class in-person have a higher average than students who take a class online.

	mean	standard deviation	n
ECE 376 In-Person	82.68%	13.22%	38
ECE 376 Online	75.34%	11.78%	11

Reflex Time

3) Record your reaction time using your dominant hand

<https://faculty.washington.edu/chudler/java/reacttime.html>

- From your times, determine the mean and standard deviation
- Use a t-test to determine the 90% confidence interval for your reaction time

4) Record one more trial of 5 experiments

- Test the hypothesis that your reaction time with your dominant hand (problem 3) is less than with your dominant hand (problem 4: 5 more trials)

5) Record your reaction time when one eye is closed (or cover up one eye).

- Test the hypothesis that your reaction time with both eyes open is less than with one eye covered up.