

SOCI 33003: SOCIAL STATISTICS

Summer I 2025

Homework 4

(Due on June 20 (Friday), 2025 @ 12:00 pm)

NAME:

STUDENT ID:

Question 1 (20 pts)

What are the probabilities associated with each of the following F values and degrees of freedom, what decision do you make concerning the null hypothesis, and what type of error do you risk?

F	df	$p <$	H_0		Error Risked	
			Reject	Don't Reject	Type I	Type II
4.42	3, 25	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.21	8, 40	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.40	2, 28	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.55	4, 10	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.55	4, 120	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Question 2 (20 pts)

For the following data, please complete the ANOVA table

A General Social Survey asked 1465 respondents how much they liked rap music. Liking of rap music was measured on a five-point scale ranging from 1 (like it very much) to 5 (dislike it very much). These are the mean rap scores and Ns for type of community in which respondent lives:

Type of Community	Mean	N
Big City	3.773	256
Suburbs	3.909	395
Small City	3.930	572
Village	4.400	55
Country	4.011	187

Sum of square	Sum of square	df	MSS	F	P	E ²
Between						
Within	1811.96					
total						

Question 3 (30 pts)

For the following data, please answer the following questions

Here are the estimated hours spent studying on a typical day of five high school students in each of three types of places:

Place of Residence		
Rural	Suburban	Urban
1	3	2
3	1	1
0	3	0
1	3	4
0	5	3

1) complete the ANOVA table (30 pts)

Sum of square	Sum of square	df	MSS	F	P	E ²
Between						
Within						
total						

2) what is the null hypothesis? (3 pts)

3) based on p, do we reject or not to reject the null hypothesis, and what type of errors incurred? (3 pts)

4) interpreting the eta-square (4 pts)

Question 4 (30 pts)

For the following data, please answer the following questions

A dean of students randomly selects 16 students, asking each a series of questions that measure students' "school spirit" on a scale from 1 to 10. Here are the total school spirit scores of these 16 students:

First-Years		Sophomores		Juniors		Seniors	
Name	Score	Name	Score	Name	Score	Name	Score
Alfie	6	Eddie	5	Iggy	4	Mannie	7
Betty	3	Frannie	5	Jackie	3	Nellie	4
Charlie	6	Gigi	2	Kelly	5	Ollie	7
Deedee	5	Hildi	4	Louie	4	Pepe	6

1) complete the ANOVA table (30 pts)

Sum of square	Sum of square	df	MSS	F	P	E ²
Between						
Within						
total						

2) what is the null hypothesis? (3 pts)

3) based on p, do we reject or not to reject the null hypothesis, and what type of errors incurred? (3 pts)

4) interpreting the eta-square (4 pts)