

MIDTERM (FORM I)
PSYCHOLOGY 3000-090, 091
U-ONLINE

Thursday, June 22, 2000 — Saturday, June 24, 2000
Tracey Smith and Melissa Hawkins

DATE: _____
STUDENT NAME: _____
U OF U ID. #: _____
SIGNATURE _____

TIME LIMIT: 2 HOURS

START TIME: _____ END TIME: _____

PROCTOR SIGNATURE: _____

THE FOLLOWING CONDITIONS APPLY:

Check all that apply:

- Calculators O.K.
- Open Book (any book)
- Dictionaries O.K.
- Notes O.K.
- Other: Homework and Assignments

Write exam answers on:

- Blue Book, Exam, or notebook paper
- Scantron

PSYCHOLOGY 3000-090, 091 (Form I)

M I D T E R M E X A M

Read each question carefully before you answer. Clearly write your answers on the back of the following pages, or use notebook paper or a blue book. Work at a steady pace, and you should have ample time to finish. Make sure your name is on this exam, blue book, or notebook paper before you turn in the exam.

1. A researcher hypothesizes that there will be a negative relationship between average hours of sleep for the week and errors made on the job. She samples a group of 5 employees from a local company and collects measurements on their average hours of sleep for the week and the number of errors that each employee made at work for the same time period. Her data are:

Employee	Hours Slept (X)	# of Errors (Y)
1	8	1
2	6	4
3	4	8
4	10	0
5	5	5

Make sure that you show all your steps and calculations so we can give partial credit where appropriate.

- (a) Find the mean and standard deviation of both variables (hours slept and # of errors). (15 points)
- (b) Draw a scatterplot. Be sure and label the X and Y axes. (5 points)
- (c) Find the correlation between hours slept and # of errors made. (10 points)
- (d) Find the regression line for predicting # of errors from the hours slept.
- 1) Find the slope, b . (5 points)
 - 2) Find the intercept, a . (5 points)
 - 3) Write the regression equation. (5 points)
 - 4) Draw this on your scatterplot. (5 points)
- (e) Calculate the total variance in the # of errors made. Also calculate the explained and unexplained variance in the # of errors made. (15 points)
- (f) If an employee averaged 3 hours of sleep, what would you predict that the employee's # of errors would be for the week? (10 points)
- (g) What is the Z-Score for the # of errors for employee 2? (10 points)

2. There are four suits: hearts, diamonds, clubs, and spades. There are 13 cards in each suit. Two of the suits are black; two of the suits are red. You shuffle a standard deck of cards and randomly draw one card from the deck, make a record of the first card, and then replace the card back into the deck. Next, you shuffle the deck and draw a second card and make a record of the second card drawn. What is the probability of drawing a red card on the first draw and a three on the second draw? That is, what is the $P(\text{red card and a three})$? (10 points)

END OF EXAM (*written 6/00*)