

OK, the usual rules apply. Keep your eyes focused on your own exam. The Skidmore Honor Code is in effect, as always. Think of a point as a minute, so you should be able to complete this exam in 140 minutes. Don't spend too long on any one answer, or you run the risk of not completing the exam. Answer questions concisely, but completely. You don't have to use prose (complete sentences, etc.) but you do have to answer questions fully. Be critical of research designs whenever possible. Good luck on the exam and have a wonderful holiday.

1. Answer *either* of the following two questions [15 pts]:

a. The Fine & Kurdek paper discusses issues of determining authorship of papers. Describe the three ethical principles that they feel are important to consider in determining authorship, then apply those principles to determine whether or not a person should be an author on a paper, given the following scenario:

Chris Smith does a senior thesis with Professor Jones. Jones is involved with every level of the development of the thesis, though Smith makes contributions throughout. Smith then collects all the data, but Jones has to do the analyses, which Smith then writes up as a senior thesis. Smith then graduates and vanishes from sight. Jones continues to conduct research in the area of Smith's thesis, ultimately conducting another 4 studies, which Jones integrates with Smith's study as a single paper with 5 studies. Jones is interested in publishing the paper, but cannot decide if Smith should be considered as an author. What should Jones do?

OR

b. The Rosenthal and the Pope & Vetter articles discuss various ethical issues that arise in the process of conducting research (although the Pope & Vetter article has a wider scope). What commonalities do you find between the two articles (regarding research issues)? Which article takes a more conservative ethical stance? Why?

2. Deception is an often-employed tactic in research — particularly social psychological research. First of all, what do the APA guidelines have to say about deception in research? Then, what would you have to say about those guidelines, given the results of the Ross et al. article? Be very explicit about the implications of the Ross et al. article for the APA guidelines. [15 pts]

3. Dr. Ryan Deer is interested in studying the impact of alcohol consumption and sleep deprivation on driving behavior. Thus, he decides to use a two-factor independent groups design study to address these issues. He uses three levels of alcohol consumption (in ounces): 1, 2, and 3 ozs. He also uses four levels of sleep deprivation: 24, 48, 72, and 96 hours. The dependent variable is the number of errors made on a driving simulator. Before taking the driving test, a participant is asked to go without sleep for one of the four times specified (e. g., 48 hours), then asked to drink a glass of orange juice laced with one of the three amounts of vodka (e.g., 3 ozs.). The number of errors made in the course of the test is recorded, then the participant is debriefed and excused. Complete the source table seen below, and then analyze the results of this study as completely as you can. [20 pts]

Anova table for a 2-factor Analysis of Variance on Y1: Errors

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Alcohol (A)		1697.			.0001
Sleep Dep		488.			.0001
AB		203.			.0001
Error		65.			

The AB Incidence table on Y_1 : Errors

Sleep Dep:		level 1	level 2	level 3	level 4	Totals:
Alcohol	level 1	4 6.25	4 7.5	4 8	4 7.5	16 7.312
	level 2	4 8.5	4 11.5	4 14	4 19.5	16 13.375
	level 3	4 14.5	4 19.75	4 25	4 28	16 21.812
Totals:		12 9.75	12 12.917	12 15.667	12 18.333	48 14.167

5. All semester long, we have been discussing the importance of power for experimental research.
a. First of all, define power. [3 pts]

b. What is the relationship between power and Type II error? (In other words, with all else equal, what happens to power as Type II error increases or decreases?) Why is that so? [4 pts]

c. What is the relationship between power and Type I error? (In other words, with all else equal, what happens to power as Type I error increases or decreases?) Why is that so? [4 pts]

d. Finally, tell me how you would ensure that you are conducting a powerful experiment. In other words, what *specific* areas of experimental design would you work on to make your experiment as powerful as possible. [9 pts]

6. In spite of the fact that we've been discussing experimental designs for most of the semester, it is clear that under some circumstances other approaches have merit. For instance, early in the semester we discussed the value (as well as limitations) of correlational designs. At the end of the semester, we discussed single-participant designs. One approach, the case study, is typified by Oliver Sacks's depiction of "The Last Hippie." Another approach, which involves manipulation, might be the ABAB design. Contrast these two approaches to single-participant designs, giving sufficient detail about both (i.e., How is a case study such as "The Last Hippie" valuable? How is an ABAB design valuable?). Under which circumstances would each of these designs make sense? What are the limitations and advantages of these single-participant designs relative to each other and to the experimental designs we have been discussing? [20 pts]

7. Dr. Harry Kirschner was interested in the impact of sleep deprivation on a vigilance task. He had 10 participants agree to stay awake for 48 hours straight. At 12-hour intervals they were each given a test in which they had to read a text searching for the first, second, third, etc. instances in which a word was misspelled by leaving out the letter “l.” The number of misspelled words correctly identified served as the dependent variable. Thus, larger scores indicated better vigilance. Complete the source table seen below and fully interpret the results of the experiment. [20 pts]

One Factor ANOVA-Repeated Measures for $X_1 \dots X_4$

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Between subjects			76.84		.0001
Within subjects					
treatments				22.28	.0001
residual			1.9		
Total					

One Factor ANOVA-Repeated Measures for $X_1 \dots X_4$

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
12 Hrs	10	13.9	5.343	1.69
24 Hrs	10	12.6	4.624	1.462
36 Hrs	10	11.1	4.332	1.37
48 Hrs	10	9.1	3.725	1.178

8. Dr. Sandra Klaus was interested in the role of attractiveness on perceived ability. She had 36 participants serve as personnel managers and assess the ability of each of 15 male “job applicants.” Each application was accompanied by a photograph of the applicant. Inserted in the middle of this stack of applications (i.e., #8) was the test stimulus. Thus, each of the three groups got identical stacks of applications and photographs, with the exception of the test stimulus. For the Low group (Group 1), the picture was that of an unattractive applicant. For the Average group (Group 2), the picture was that of a man rated to be average in attractiveness. For the High group (Group 3), the picture was that of a very attractive man. Of course, the application itself was identical for all three groups. The dependent variable of interest was the rating of ability of the applicant on a scale of 0 (“very poor”) to 10 (“excellent”). Below are the data, including an incomplete source table. Complete the information and interpret the data as completely as possible. [20 pts]

Mean	<u>Low</u> 4.25	<u>Average</u> 4.25	<u>High</u> 8.5
Variance	.9	1.1	1.3
n	12	12	12

One Factor ANOVA X1: Attractiveness Y1: Ability Rating

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups				67.
Within groups				p = .0001
Total		180		