

As always, the Skidmore Honor Code is in effect, and at the end of the exam I'll have a sheet on which you will indicate your adherence to the Honor Code. Read each question carefully and answer completely, showing all your work. Good Luck!

1. Well, of course you expect to tell me about the impact of various designs on the number of participants needed. For this problem, assume that we want to have a minimum of 30 pieces of data in each cell/condition. [10 pts]

Design	# of participants	# of pieces of data
A 5x6 completely between (independent groups) design		
A 5x6 completely within (repeated measures) design		
A 5x6 mixed design, with the first factor between (independent groups) and the second factor within (repeated measures)		
A 5x6 mixed design, with the first factor within (repeated measures) and the second factor between (independent groups)		
A 4x7 mixed design, with the first factor within (repeated measures) and the second factor between (independent groups)		

2. Suppose that you are interested in the effects of a particular drug on the concentration level of young children with Attention Deficit Disorder. You conduct a simple experiment in which an experimental group gets the drug and a control group gets a placebo. When you analyze your data, you find that your effect is not significant, with  $p < .09$ . Initially, you are disappointed, but then you remember that you had an equal number of male and female students in each group. How might that information help you at this stage of your experiment? In other words, tell me what's lacking in your initial analysis of the study and how you might fix that problem by taking advantage of the fact that you have data from an equal number of males and females in each of your two groups. When would this approach not be helpful? Be as explicit as possible. (5 pts)

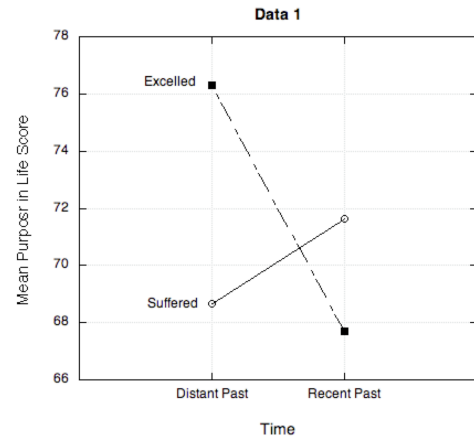
3. For Lab 3, you collected data for a 2x2 independent groups design in which the two factors were Perceived Time (Distant Past vs. Recent Past) and Type of Event (Excelled vs. Suffered). There were a number of different dependent variables, including a *Purpose in Life* subscale. Complete the source table below, then interpret the results as completely as you can. Finally, briefly discuss/interpret the results you obtained (as you might in your discussion section). (15 pts)

Descriptive Statistics				
Dependent Variable: Purpose in Life				
Time	Event	Mean	Std. Deviation	N
Recent	Suffered	71.6	12.6	20
	Excelled	67.7	14.9	20
	Total	69.9	13.6	40
Distant	Suffered	68.7	13.8	20
	Excelled	76.3	9.3	20
	Total	72.9	12.0	40
Total	Suffered	70.3	13.1	40
	Excelled	72.6	12.6	40
	Total	71.4	12.8	80

**Levene's Test of Equality of Error Variances<sup>a</sup>**  
 Dependent Variable: Purpose in Life

F	df1	df2	Sig.
1.479	3	75	.227

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.  
 a. Design: Intercept + Time + Event + Time \* Event



Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power <sup>b</sup>
Time				.97	.327	.013	.164
Event				.42	.517	.006	.098
Time * Event				4.10	.047	.052	.515
Error			70.5				
Corrected Total							

4. A common desire—especially in novice researchers—is to measure people on the dependent variable before putting people in any condition (pre-test) then measuring their performance on the dependent variable after the manipulation(s). (Recognize anyone, Brendan? ☺) This approach isn't necessary with appropriate experimental design, right? If you use random assignment to conditions and have a sufficient number of participants you should be ok. First, tell me how random assignment to conditions works to solve the problems addressed by pre-tests. Next, to show that you understand the nature of the problem, give me an example of a confounded experiment in which people are not randomly assigned to conditions and explain why the lack of random assignment would represent a confound. Finally, tell me one downside of doing a pre-test. [10 pts]

5. Helmrich, Aronson, and LeFan (1970) examined the effects of seeing a person commit a social blunder. The participants were divided into three conditions on the basis of their self-esteem scores (Low, Medium, High). Some participants in each self-esteem group saw a competent person accidentally spill a cup of coffee on the floor (Spill). The other participants saw the competent person in the same situation but not spilling the coffee (No Spill). All participants were asked to indicate how much they liked the person on a 20-point scale (20 = like a lot). Below is a partially completed source table consistent with results from this study. Complete the source table and then interpret the results as completely as you can. (15 pts)

**Descriptive Statistics**

Dependent Variable: Liking

SelfEsteem	CoffeeSpill	Mean	Std. Deviation	N
Low	No Spill	12.2000	2.04396	10
	Spill	5.0000	1.24722	10
	Total	8.6000	4.04449	20
Medium	No Spill	8.0000	1.76383	10
	Spill	13.8000	1.31656	10
	Total	10.9000	3.33877	20
High	No Spill	13.3000	1.49443	10
	Spill	10.3000	1.56702	10
	Total	11.8000	2.14231	20
Total	No Spill	11.1667	2.88974	30
	Spill	9.7000	3.91417	30
	Total	10.4333	3.49026	60

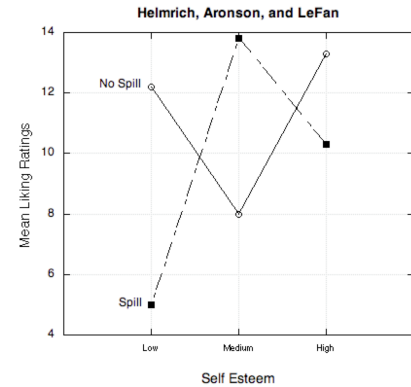
**Levene's Test of Equality of Error Variances<sup>a</sup>**

Dependent Variable: Liking

F	df1	df2	Sig.
.651	5	54	.662

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + SelfEsteem + CoffeeSpill + SelfEsteem \* CoffeeSpill



Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power <sup>b</sup>
SelfEsteem				21.4	.000	.442	1.000
CoffeeSpill				12.7	.001	.190	.938
SelfEstm * CoffSpill				86.5	.000	.762	1.000
Error	137.4						
Corrected Total							

6. You should know a bit about the bystander apathy effect (e.g., some discussion in the textbook and some discussion in class—Kitty Genovese). Remember that Lance Shotland studied the extent to which people were more or less likely to go to the aid of a woman being accosted by a man if it did ("I don't know why I married you!") or did not ("I don't know you!") appear that the two people were in a relationship. Suppose that you were interested in designing a study in which you looked at this variable (Type of Relationship) and also at the number of bystanders present. You are limited to 3 levels of the Number of Bystanders variable, but you are free to choose the specific levels. (20 pts)

a. Briefly describe the design that you would use for this study (completely between/independent groups, completely within/repeated measures, or mixed) and tell me why you would choose to do so.

b. You want to have a minimum of 25 scores per cell for this study. Describe the study you would conduct in sufficient detail that I can see that you have given thought to how you would actually go about constructing the experiment and collecting the data.