ID# _____ Exam1 PS 306, Spring 2008

The Skidmore Honor Code is in effect for this exam, as always. You'll be asked to write out the Honor Code statement at the end of the exam. Read each question carefully and answer it completely. Pay careful attention to the point value of each question, thinking of a point as a minute. That is, if you answer a 10-point question in about 10 minutes, you'll complete the exam in a timely fashion. I'm also presuming that after taking PS 217, you all remember that the standard deviation (s) is simply the square root of the variance (s^2). Good luck!

1. (From G&W) In order to study cardiovascular responses to embarrassment, Harris (2001) had people sing the *Star Spangled Banner* in front of a video camera while she recorded their heart rate and blood pressure. She found that blood pressure increases steadily for two minutes before gradually returning to normal. What about the heart rate data? Below is a partially completed source table for these heart-rate data. Complete the table and analyze/interpret the results as completely as possible. Is the pattern for heart rate similar to that for blood pressure? [15 pts]

Descriptive Statistics

	Mean	Std. Deviation	N
Baseline Heart Rate	76.9167	1.72986	12
Heart Rate at 1 Min	89.2500	1.86474	12
Heart Rate at 2 Min	78.0833	1.78164	12

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
time	Sphericity Assumed				333.800	.000	.968	667.600	1.000
Error(time)	Sphericity Assumed			1.667					

Even though this is a repeated measures design, no counterbalancing is possible. Briefly explain why not.

2. Mook argues that external validity is not always the purpose behind psychological research. For each of the studies below, indicate why the study is not externally valid, then why it's not a concern, given the intentions of the researcher(s). [10 pts]

Study	Why not externally valid	Why lack of EV is not a concern
Argyle (glasses and intelligence)		
Harlow (infant monkeys and drive reduction theory)		
Hecht (dark adaptation)		
Brown & Hanlon (parental role in grammar acquisition)		

3. In the first lab, we collected a number of different academic measures from members of both sections of PS 306. Below are the results from a correlation analysis of two different SAT scores (Math and Verbal/Critical Reading). First of all, tell me what you could conclude from these results. Then, given an SAT-V score of 600, what SAT-M score would you predict using the regression equation? Given the observed correlation, if a person studied and raised her or his SAT-V score, would you expect that person's SAT-M score to increase as well? What would you propose as the most likely source of the observed relationship? [10 pts]

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.438[a]	.192	.173	59.47261

a. Predictors: (Constant), satv

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36109.377	1	36109.377	10.209	.003[a]
	Residual	152090.623	43	3536.991		
	Total	188200.000	44			

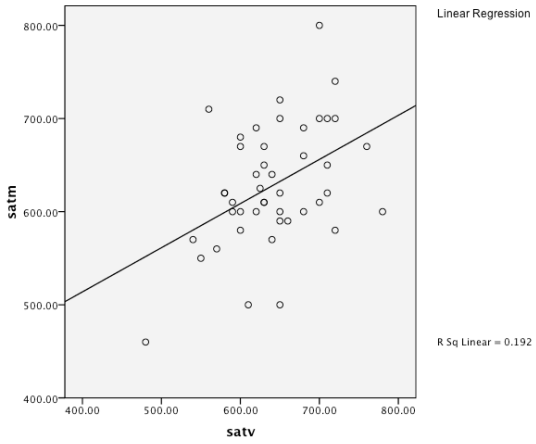
a. Predictors: (Constant), satv

b. Dependent Variable: satm

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	324.301	95.566		3.393	.001
	satv	.474	.148	.438	3.195	.003

a. Dependent Variable: satm



4. (From G&W) Intelligence is offered as one possible explanation for why some birds migrate and others maintain year-round residency in a single location. That is, small bird brains (relative to body size) don't have enough computational power to allow the bird to find food during the winter, so they must migrate to warmer climates where more food is available (Sol, Lefebvre, & Rodriguez-Tejeiro, 2005). On the other hand, large bird brains (relative to body size) produce sufficient computational power that their owners are more creative and can find food even when the weather turns harsh. Below is a partially completed source table consistent with the actual research results. The numbers represent the relative brain size for the individual birds in each sample. Complete the table and analyze/interpret the results as completely as possible. [15 pts]

Descriptives

Relative Brain Size

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Non-Migrating	15	15.0000	5.35857	1.38358	12.0325	17.9675	8.00	23.00
Short-distance Migrant	15	10.0000	5.11301	1.32017	7.1685	12.8315	5.00	16.00
Long-distance Migrant	15	5.0000	4.72077	1.21890	2.3857	7.6143	2.00	14.00
Total	45	10.0000	6.44910	.96138	8.0625	11.9375	2.00	23.00

Test of Homogeneity of Variances

Relative Brain Size

Levene Statistic	df1	df2	Sig.
.942	2	42	.398

ANOVA

Relative Brain Size

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups				14.5	.000
Within Groups	1080.000				
Total					

5. (From G&W) There is some evidence to suggest that high school students justify cheating in class on the basis of the teacher's skills or stated concern about cheating (Murdock, Miller, & Kohlhardt, 2004). Thus, students appear to rationalize their illicit behavior on perceptions of how their teachers view cheating. Poor teachers are thought not to know or care whether or not students cheat, so cheating in their classes is viewed as acceptable. Good teachers, on the other hand, do care and are alert to cheating, so students tend not to cheat in their classes. Below is a partially completed source table and summary statistics that are consistent with the findings of Murdock et al. The scores represent judgments of the acceptability of cheating for students in each sample. Complete the source table below and interpret the data as completely as you can. What is your best estimate of the population variance (σ^2)? [10 pts]

Descriptives

Acceptability of Cheating

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Good Teacher	20	2.1000	.85224	.19057	1.7011	2.4989	1.00	4.00
Poor Teacher	20	6.0500	1.27630	.28539	5.4527	6.6473	3.00	8.00
Total	40	4.0750	2.26894	.35875	3.3494	4.8006	1.00	8.00

Test of Homogeneity of Variances

Acceptability of Cheating

Levene Statistic	df1	df2	Sig.
2.147	1	38	.151

ANOVA

Acceptability of Cheating

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups				132.4	.000
Within Groups					
Total					

6. Briefly define the following terms and explain why each term is important to experimental design. [10 pts]

floor effect

running in randomized replications

random assignment to conditions

counterbalancing

reliability

7. Psychologists often use the recognition paradigm to study memory. Thus, a list of words would be presented and then there would typically be a distractor phase (count backwards by 3 from 275) and then a test that contains both new items (not in the original list) as well as old items (from the original list). Suppose that you were interested in testing the extent to which the frequency of the word in the English language had an impact on recognition memory. You acquire four lists of words that vary in frequency (from low to high frequency, labeled I, II, III, IV), with 20 words in each list. You want to use a repeated measures design in which you present the words in four blocks (all the items in each block from the same frequency group, I, II, III, or IV). Briefly describe how you would design your study and how many participants you would use. [10 pts]

Given the number of participants you propose, complete the following source table and tell me what you could conclude from his study. (You don't need to know F_{Crit}…right? And you can ignore the Subject line if you prefer.)

Source	***SS***	***df***	***MS***	***F***
Subject				
Treatment	40.0			1.0
Error				

Even though the means for each condition are not provided to you here, what can you tell me about the means of the four conditions?