ID# _____ Exam 3 PS 306, Fall 2001
(You must use your actual student ID #!)

OK, here's your last chance to demonstrate to me that you've really mastered the concepts that are central to experimentation in psychology. Read each question carefully and answer each question completely. If you spot any problems with the design of a study, please bring them to my attention. Show all your work, so that I can give you partial credit. Remember that I think of a point as a minute, so spend the appropriate amount of time on each question. Good luck on this exam! Have a peaceful and relaxing winter break. May the spirit of the season fill your heart and may you find special solace in the presence of family and loved ones.

1. The Ross, et al. article is important because of its demonstration that debriefing may not be sufficient to remove the effects of deceptive feedback. Using the two studies in that article, illustrate the perseverant effects of deception and the way that process debriefing may be able to minimize the impact of such deception. [10 pts]

2. Dr. Maureen Katz was interested in conducting research on the impact of a new drug (SuperMethAmphetaRootaToluene) on learning. She decides to use cats as her subjects, and the time it takes them to complete a maze as an indication of their speed of learning. Her cats are given either a small dose, a medium dose, or a large dose of SMART. Use the data below to complete the source table and then tell Dr. Katz what she should do next. It may help to recall that the standard deviation is the square root of the variance. [15 pts]

ANOVA Table for Time

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Group				3.000	.1250	6.000	.377
Residual							

Means Table for Time
Effect: Group

	Count	Mean	Std. Dev.	Std. Err.
Large Dose	3	6.000	1.000	.577
Med Dose	3	5.000	1.000	.577
Small Dose	3	4.000	1.000	.577

3. Dr. Tex Reeder was interested in the impact of some factors on the memory for text. Texts were presented to readers one word at a time at one of three rates (300, 450, or 600 words per minute). For half the participants at each rate, the texts were intact (ordinary sentence structure) and for the rest of the participants they were scrambled (order of the words in the sentence was scrambled). Thus, this is a 3x2 independent groups design. The dependent variable is the percentage of idea units recalled from the texts. Below are the source table and a summary table. Complete the source table and analyze the data as completely as possible. [20 pts]

ANOVA Table for Recall

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Text		507.0			.0065	8.201	.811
Rate		2027.3			<.0001	32.794	1.000
Text * Rate		492.1			.0261	7.960	.681
Residual		2596.5					

Means Table for Recall
Effect: Text * Rate

	Count	Mean	Std. Dev.	Std. Err.
Intact, 300 wpm	8	66.250	8.276	2.926
Intact, 450 wpm	8	59.875	8.919	3.153
Intact, 600 wpm	8	43.375	9.023	3.190
Scrambled, 300 wpm	8	54.375	5.829	2.061
Scrambled, 450 wpm	8	49.750	7.226	2.555
Scrambled, 600 wpm	8	45.875	7.434	2.628

4. Psychologists have become increasingly interested in the role of perceived control as it affects individuals' abilities to cope with stress. [This exercise is modeled after Bandura, et al. (1985). Catecholamine secretion as a function of perceived coping self-efficacy. *Journal of Consulting and Clinical Psychology, 53,* 406-414.] They hypothesized that perceived coping self-efficacy would mediate the effects of an environmental stressor on hormone secretions indicative of a physiological response to stress. Twelve individuals with phobic dread of spiders served as participants. They each rated their perceived coping self-efficacy for 18 tasks requiring increasingly threatening interactions with a large spider. Three of the 18 tasks were individually selected for each participant, so as to have one strong, one medium, and one weak self-efficacy task for each participant. Participants were then individually instructed to perform each of their three tasks in a counterbalanced order. In reality, no participant was able to perform the weak perceived self-efficacy task. The dependent variable to be considered here (level of norepinephrine secretion, was one of several physiological measures obtained from each participant. Complete the source table and interpret these data as completely as you can. [15 pts]

ANOVA Table for Task

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Subject			.011				
Category for Task				4.216	.0282	8.432	.677
Category for Task * Subject			.004				

Means Table for Task
Effect: Category for Task

	Count	Mean	Std. Dev.	Std. Err.
Strong	12	.278	.086	.025
Medium	12	.354	.083	.024
Weak	12	.298	.077	.022

5. Throughout the semester (or throughout your career as a student of psychology) you've been exposed to a large number of studies in psychology. Surely at least one of those studies should strike you as unethical. (Even Andrew!) What I would like you to do is to briefly describe one psychological study that you consider to be unethical and, using the APA guidelines, clearly articulate the points of the guidelines that were violated by the study. [10 pts]

6. Generally speaking, repeated measures designs are valuable because they are more powerful and more efficient. You can illustrate the efficiency of repeated measures designs in a number of ways. One simple way is to determine the number of participants needed to complete particular multifactor designs. Suppose that you are considering a 3x6 design. Determine the number of participants needed for each of the following designs, with the further stipulation that you need to have at least 25 scores per cell. (Show you work in each case.) [20 pts]

a. completely between design needs _____ participants

b. mixed design with the 3-level factor between and the 6-level factor repeated needs _____ participants

c. mixed design with the 3-level factor repeated and the 6-level factor between needs _____ participants

d. completely repeated design needs _____ participants

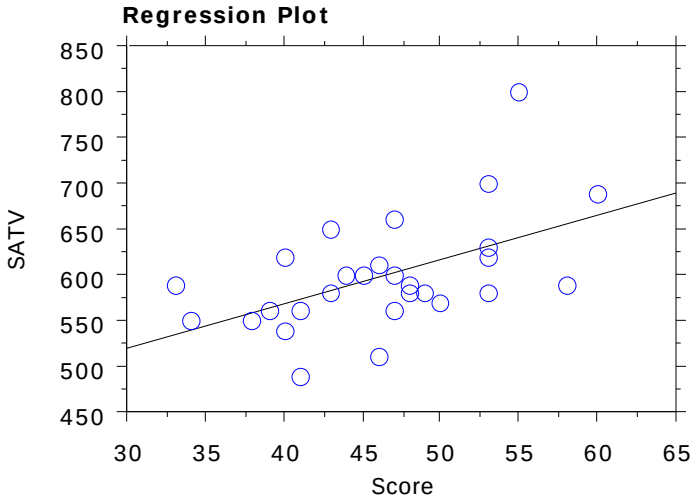
The results above should illustrate the efficiency of the repeated measures design. You also know that the repeated measures design is more powerful. Given the efficiency and power of repeated measures designs, why would anyone ever design an independent groups study?

Under what conditions would the repeated measures design *not* be more powerful than an independent groups design?

7. Most of us do reasonably well if we study a body of material and then take an exam on the material. But how would we do if we just took the exam without even looking at the material. (I presume that none of you are trying that right now! ☺) Katz, et al. (1990) examined that question by asking some students to read a passage and then answer a series of multiple-choice questions about the passage, and asking other students to answer the questions without reading the passage. If people are able to do well in the second group, it's presumably because they have good test-taking skills. If so, then they should also do well on standardized tests like the SAT Verbal (SATV). Below are scores from the people who hadn't read the passage (Scores) and their performance on the SATV. Interpret the results of this study as completely as you can. If someone received a Score of 50 (on the unread passage), what SATV score would you predict for that person? What proportion of the variability of SATV scores is shared by Scores on the passage? [10 pts]

Regression Summary
SATV vs. Score

Count	28
Num. Missing	0
R	.532
R Squared	.283
Adjusted R Squared	.255
RMS Residual	53.134



Y = 373.736 + 4.865 * X; R^2 = .283

ANOVA Table
SATV vs. Score

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	1	28940.123	28940.123	10.251	.0036
Residual	26	73402.734	2823.182		
Total	27	102342.857			

Regression Coefficients
SATV vs. Score

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	373.736	70.938	373.736	5.269	<.0001
Score	4.865	1.520	.532	3.202	.0036