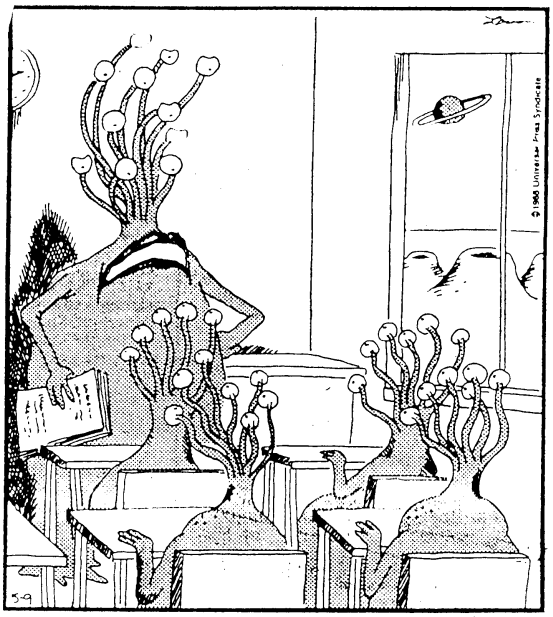
ID# _____ Exam 1 PS 306, Spring 2003



"And one final warning before we begin the exam — any stray eyeballs will be immediately thumped."

First of all, as seen above, be sure to keep your eyes focused on your own exam. The Skidmore Honor Code is in effect for this exam (as always). Read each question carefully and answer it completely. However, you need not answer in perfect prose. Outlines, a collection of phrases, pictures, etc., will all work, as long as you are perfectly clear. The point value of each question is marked, and I tend to think of a point as a minute. Thus, if you spend 30 minutes answering a 10-point question, you've made a tactical error. Good luck!

1. Define an operational definition and then give an example of a specific operational definition from the Mook article or the video from the first day of class. If you needed to design a study investigating stress, what would be your first step in operationally defining stress? [5 pts]

2. Dr. Will Parr was interested in the impact of stress on performance on a motor task. To that end, he randomly assigned people to one of three levels of stress (Low, Moderate, High) based on the level of shock threatened at the end of the experiment. People in the Low stress condition were told that they would receive a very mild shock if the number of holes-in-one they achieved was less than a secret number, which would be revealed at the end of the course. People in the Moderate stress condition were given the same instructions, but were told that the shock would be moderately painful, but, of course, no permanent tissue damage. People in the High stress condition were given the same instructions, but were told that the shock would be very painful. The DV used was the number of holes-in-one achieved on the challenging putt-putt golf course. Complete the analysis seen in the source table below, interpret the results as completely as you can, then tell Dr. Parr what he should do next. [10 pts]

ANOVA Table for Performance

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Stress		.600			.3089	2.455	.236
Residual		6.600					

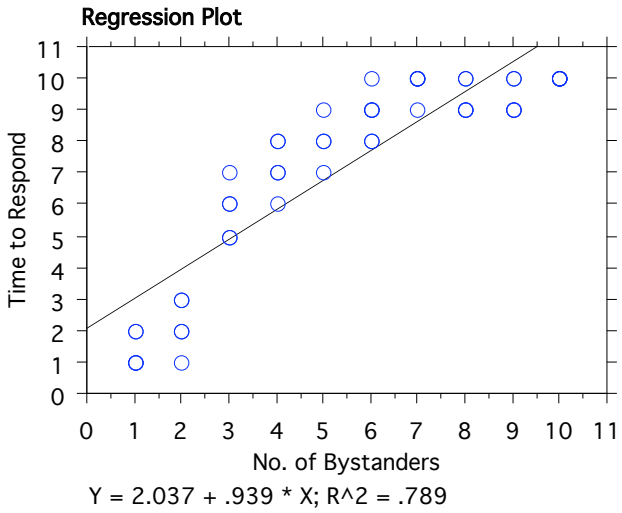
Means Table for Performance
Effect: Stress

	Count	Mean	Std. Dev.	Std. Err.
High	10	1.400	.516	.163
Low	10	1.700	.483	.153
Moderate	10	1.700	.483	.153

3. We talked about the Darley and Latané study of bystander apathy as an ANOVA. However, you would also be able to conduct a study that looked at many different levels of number of bystander with a correlation/regression analysis. That is, suppose that you randomly assigned n = 5 participants to each of 10 levels of number of "bystanders" in the communication study used by Darley & Latané (1, 2, 3, 4, 5, 6, 7, 8, 9, and 10). (So the 1 bystander condition would be the participant and one other person, who was your confederate.) As your dependent variable you then measured the number of minutes until a participant went to investigate the choking confederate. The number of minutes to respond for each of the participants was entered into the analysis seen below. (Because some participants responded in the same amount of time, some of the circles overlap in the scattergram below.) Interpret the results as completely and clearly as you can. If a person were in this situation with 3 other people, how quickly would that person respond? Would you feel comfortable making causal claims based on this study? [10 pts]

Regression Summary
Time to Respond vs. No. of Bystanders

Count	50
Num. Missing	0
R	.889
R Squared	.789
Adjusted R Squared	.785
RMS Residual	1.421



ANOVA Table
Time to Respond vs. No. of Bystanders

	DF	Sum of Squares	Mean Square	F-Value	P-Value
Regression	1	363.620	363.620	180.009	<.0001
Residual	48	96.960	2.020		
Total	49	460.580			

Regression Coefficients
Time to Respond vs. No. of Bystanders

	Coefficient	Std. Error	Std. Coeff.	t-Value	P-Value
Intercept	2.037	.435	2.037	4.678	<.0001
No. of Bystanders	.939	.070	.889	13.417	<.0001

4. You've read the Mook article, with its extended discussion of external validity. First, define external validity and then describe the source of external invalidity in the Brown & Hanlon study (acquisition of grammatical speech through parental feedback) and the Hecht study (dark adaptation). Then, tell me why Mook (and you?) think that these specific examples of external invalidity are not of great concern. [10 pts]

5. Briefly, but clearly, indicate why a nonmanipulated characteristic of a participant, such as intelligence, may be of interest to a psychologist, but that it doesn't lend itself to studies that can result in causal claims about the impact of intelligence on some dependent variable. [5 pts]

6. What is meant by a manipulation check? Under which experimental conditions would a manipulation check be very useful? Using a study from the Mook article, indicate how a manipulation check might have been used to buttress the study. [5 pts]

7a. Suppose that you were interested in the impact of two different drugs (Drug X and Drug Y) on maze performance in rats. You decide to use a repeated measures design to yield the greatest power and efficiency in your study. Describe your study as clearly and completely as you can (number of conditions, number of rats, procedure you would use, etc.). [15 pts]

7b. Suppose that your data produced the source table seen below. Complete the source table and interpret the results as completely as you can. [5 pts]

ANOVA Table for Drug

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Subject			2.540				
Category for Drug			58.857	36.000	<.0001	72.000	1.000
Category for Drug * Subject							

7c. Suppose that you redesigned your study as an independent groups design. Suppose, further, that (through some major miracle) you get exactly the same scores as you achieved with your repeated measures study. First of all, tell me how many rats you would have in your independent groups study. Then, produce a source table below to show what your analysis would look like. [5 pts]

Source	df	SS	MS	F