

## Midterm Example Items

1. The courses studied by a group of undergraduate students would be considered an example of which level of measurement?
  - a. Nominal
  - b. Ordinal
  - c. Interval
  - d. Ratio
2. Researchers wanted to examine the impact of a high-protein diet (e.g. Adkins diet) in a group of individuals who had been sedentary for a minimum of 20 years. A variety of physiological phenomena such as blood pressure and blood glucose concentrations were measured before, during and after the diet. How might you describe the research design of such a study?
  - a. Between-groups design
  - b. Between-within design
  - c. Within-subjects design
  - d. Independent-groups design
3. The difference between each observation and the model fitted to the data (i.e. all observations) is known as:
  - a. Residual
  - b. Difference
  - c. Offset
  - d. Disparity
4. In hierarchical regression:
  - a. One set of predictors are entered first in a regression before another set
  - b. Dummy codes are used to add nominal variables to a regression
  - c. The regression weights are applied to a new sample
  - d. None of the above
5. Suppose SPSS reported to you a two-tailed significance of  $p = .284$ . What would the one-tail significance level be?
  - a. .142
  - b. .568
  - c. .026
  - d. no way to know

### Open Book Example

Researchers were interested in how much first semester college students called home and if the behavior was related to how home sick they felt and their overall college adjustment. The researcher believed that home sick students would call home more, but that calling home was a sign of overall lower adjustment to college life. High scores on the measures mean more calling, more home sickness and better overall adjustment

A. Identify the independent variable(s) and level of measurement

B. Identify the dependent variable and level of measurement

C. Is the study a within or between group study? Is it correlational or experimental?

D. What statistical test was performed here and was it the proper test given the study described?

E. What conclusion can you reach about given the data analysis? Does it support their hypothesis?

F. What do you make of the differing significance levels for home – sickness? Looking at the pattern of results, what does that suggest to you?

# Regression

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	CAT-Home Sickness <sup>b</sup>	.	Enter
2	CAT-Overall Score <sup>b</sup>	.	Enter

a. Dependent Variable: Calls home per month

b. All requested variables entered.

**Model Summary<sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.324 <sup>a</sup>	.105	.086	10.25384	.105	5.516	1	47	.023
2	.555 <sup>b</sup>	.308	.278	9.11397	.203	13.492	1	46	.001

a. Predictors: (Constant), CAT-Home Sickness

b. Predictors: (Constant), CAT-Home Sickness, CAT-Overall Score

c. Dependent Variable: Calls home per month

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	579.990	1	579.990	5.516	.023 <sup>b</sup>
	Residual	4941.643	47	105.141		
	Total	5521.633	48			
2	Regression	1700.670	2	850.335	10.237	.000 <sup>c</sup>
	Residual	3820.963	46	83.064		
	Total	5521.633	48			

a. Dependent Variable: Calls home per month

b. Predictors: (Constant), CAT-Home Sickness

c. Predictors: (Constant), CAT-Home Sickness, CAT-Overall Score

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	18.834	4.592		4.102	.000			
	CAT-Home Sickness	-.437	.186	-.324	-2.349	.023	-.324	-.324	-.324
2	(Constant)	39.397	6.928		5.686	.000			
	CAT-Home Sickness	-.132	.185	-.098	-.713	.479	-.324	-.105	-.087
	CAT-Overall Score	-.326	.089	-.504	-3.673	.001	-.548	-.476	-.451

a. Dependent Variable: Calls home per month

**Excluded Variables<sup>a</sup>**

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics	
					Tolerance	
1	CAT-Overall Score	-.504 <sup>b</sup>	-3.673	.001	-.476	.799

a. Dependent Variable: Calls home per month

b. Predictors in the Model: (Constant), CAT-Home Sickness

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-3.5000	30.3181	8.6122	5.95236	49
Residual	-16.48223	25.57022	.00000	8.92207	49
Std. Predicted Value	-2.035	3.647	.000	1.000	49
Std. Residual	-1.808	2.806	.000	.979	49

a. Dependent Variable: Calls home per month