There's no limit to how complicated things can get, on account of one thing always leading to another. – E. B. White

NAME: _____ **_____/30**

A 2x3 experimental study was conducted to examine the degree to which ***Room Color*** affects learning across two different class ***Topics***. The data are provided on the next page. Three room colors were used (red, green, and blue) and performance was assessed across two class topics (math and history). ***Learning*** was measured by inspecting final exam scores.

Part I

Analyze the data as though the design was a 2x3 **between-subjects** (independent groups) design in which N = 120.

[After data entry: Analyze → General Linear Model → Univariate → Select dependent variable & the "fixed factors" (independent variables) to analyze → Under "options" you can get means for the interaction by checking "descriptive statistics" → CONTINUE → OK]

Part II

Analyze the data as though the design was a 2x3 **within-subjects** (repeated measures) design in which N = 20.

[After data entry: Analyze → General Linear Model → Repeated Measures → Define the independent variables (enter levels) → Define: Highlight appropriate column [on left] to match expected label [on right] and press arrow to move it over → Under "options" you can have it display means for the interaction by checking "descriptive statistics" → CONTINUE → OK]

REMEMBER: IT IS EXPECTED THAT YOU WILL DO YOUR OWN WORK!

You should be able to (1) Print out a copy of both analysis outputs, and (2) complete the following summary information from the SPSS outputs: BOTH analyses should produce the same means (double check in case of data entry errors).

MEANS (round to 1 decimal place)	**Red**	**Green**	**Blue**
Math			
History			

Between-Subjects Analysis

Main effect of Class ***Topic***: $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Main effect of Room ***Color***: $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Interaction effect (***Topic x Color***): $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Within-Subjects Analysis

Main effect of Class ***Topic***: $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Main effect of Room ***Color***: $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Interaction effect (***Topic x Color***): $F(\_\_\_\_,\_\_\_\_) = \_\_\_\_\_$, $p = \_\_\_\_\_$

Stuck? Try the example I provided on the "handouts" webpage (then modify it for the data here).

Topic	Color	Score	Topic	Color	Score	Topic	Color	Score
Math	Red	43	Math	Blue	88	History	Green	58
Math	Red	90	Math	Blue	76	History	Green	65
Math	Red	93	Math	Blue	63	History	Green	59
Math	Red	38	Math	Blue	38	History	Green	71
Math	Red	54	Math	Blue	31	History	Green	72
Math	Red	73	Math	Blue	10	History	Green	71
Math	Red	37	Math	Blue	73	History	Green	56
Math	Red	58	Math	Blue	78	History	Green	75
Math	Red	35	Math	Blue	53	History	Green	56
Math	Red	53	Math	Blue	78	History	Green	60
Math	Red	85	Math	Blue	3	History	Green	71
Math	Red	82	Math	Blue	61	History	Green	70
Math	Red	71	Math	Blue	3	History	Green	70
Math	Red	32	Math	Blue	10	History	Green	63
Math	Red	53	Math	Blue	54	History	Green	76
Math	Red	54	Math	Blue	93	History	Green	79
Math	Red	36	Math	Blue	75	History	Green	74
Math	Red	74	Math	Blue	77	History	Green	65
Math	Red	96	Math	Blue	83	History	Green	59
Math	Red	42	Math	Blue	98	History	Green	52
Math	Green	86	History	Red	83	History	Blue	59
Math	Green	59	History	Red	96	History	Blue	43
Math	Green	44	History	Red	80	History	Blue	35
Math	Green	62	History	Red	78	History	Blue	43
Math	Green	56	History	Red	95	History	Blue	27
Math	Green	70	History	Red	80	History	Blue	60
Math	Green	68	History	Red	81	History	Blue	22
Math	Green	66	History	Red	98	History	Blue	49
Math	Green	93	History	Red	84	History	Blue	58
Math	Green	51	History	Red	93	History	Blue	32
Math	Green	84	History	Red	81	History	Blue	47
Math	Green	96	History	Red	97	History	Blue	37
Math	Green	49	History	Red	78	History	Blue	19
Math	Green	93	History	Red	85	History	Blue	57
Math	Green	84	History	Red	98	History	Blue	55
Math	Green	95	History	Red	92	History	Blue	37
Math	Green	57	History	Red	82	History	Blue	39
Math	Green	90	History	Red	98	History	Blue	62
Math	Green	55	History	Red	84	History	Blue	53
Math	Green	53	History	Red	93	History	Blue	69