

Statistics Assignments Using Excel®

Assignment #10: Two-Way Between Groups ANOVA

A social psychologist conducts an experiment to determine the best way to design a message for college students about the importance of engaging in safe sex. She hypothesizes that two factors impact the effectiveness of the message: (a) the medium used to deliver the message (lecture, video, or pamphlet), and (b) the emotional tone of the message (fear, neutral, or humor). The dependent variable is a measure of behavioral intention to engage in safe sex behavior (higher score indicating greater intention). She randomly assigns 45 participants to 9 groups, and obtains the following data:

Emotional Tone	Medium		
	Lecture	Video	Pamphlet
Fear	7	6	5
	6	5	4
	7	7	7
	4	6	4
	4	4	6
Neutral	6	6	6
	9	4	4
	8	7	5
	4	5	8
	2	6	4
Humor	7	4	8
	7	2	5
	4	1	4
	8	2	6
	4	1	4

- Using Excel, analyze these data by performing a two-way between-groups ANOVA. Create formulas to calculate the SS terms and the rest of the ANOVA summary table.
- Include the effect size (eta-squared) for the medium, emotional tone, and medium X emotional tone effects in your ANOVA table (you'll need to create your own formulas).
- Create a graph to show the results, with error bars (estimated standard error of the means).
- Insert a textbox in which you report the results of the ANOVA, the effect sizes for any significant effects, and refer to the graph to describe the pattern of any significant results.
- Do a final save and submit your work.

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 Microsoft Excel is a trademark of the Microsoft group of companies.

The following textbook contains detailed instructions for using spreadsheets in an introductory statistics class:
 Tagler, M. J. (2009). *Understanding basic statistics with spreadsheets*. New York, NY: Pearson Custom.