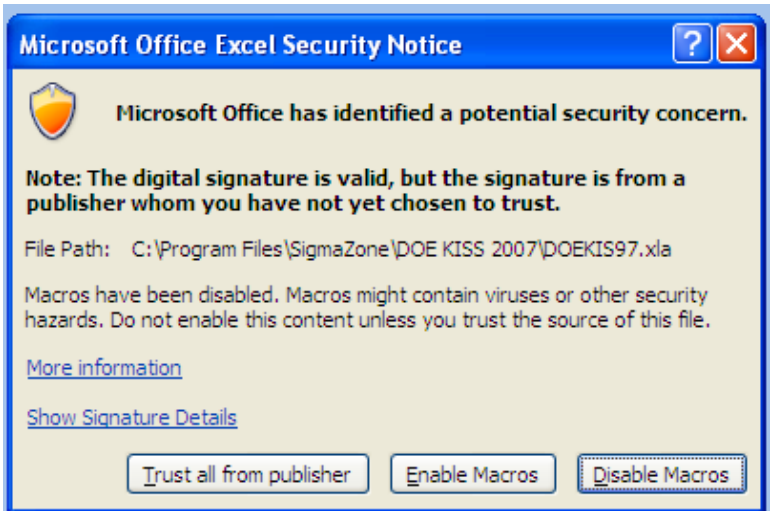
INTRODUCTION
TO
DOE KISS by SigmaZone

The purpose of this exercise is to familiarize you with the DOE KISS SigmaZone software. We will be going into greater detail on topics that are mentioned in this introduction. Don't get too hung-up on not knowing exactly what is going on. By the end of the course you will know.

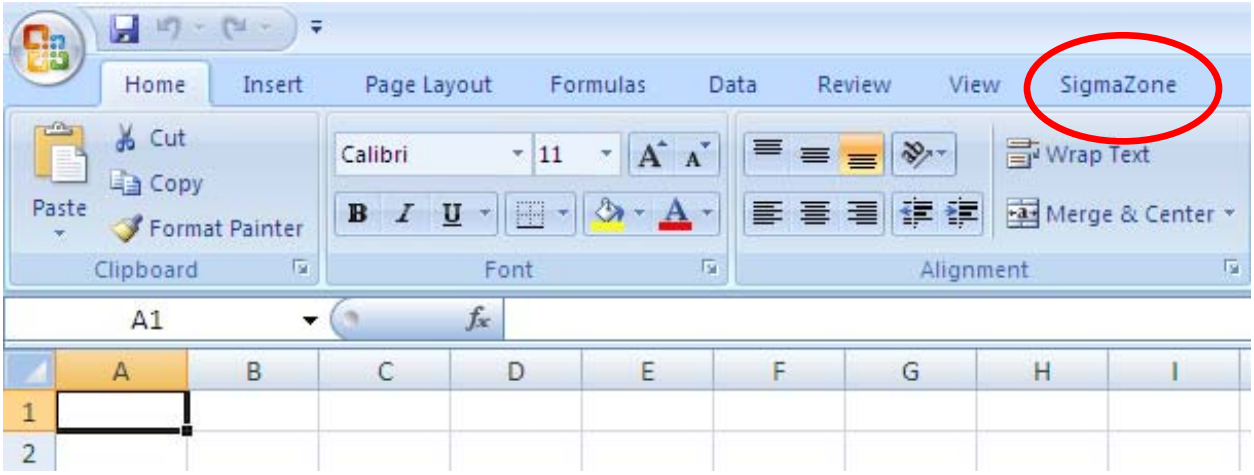
1. DOE KISS SigmaZone is a macro that runs inside Microsoft EXCEL. Follow the instructions on the disk and load the software. If the software doesn't run then you may need to change your MACRO security in order to allow macros.

2. Start the program in the usual way from your Start Programs menu.

You may get the following dialogue box when you start the program. Click on **Enable Macros**.

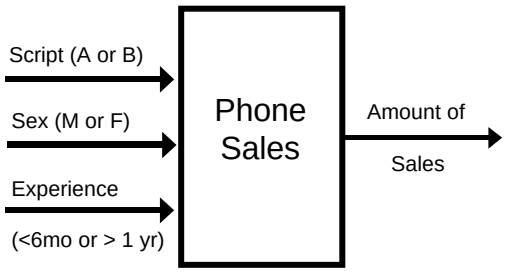


3. You should see a SigmaZone menu in Excel.



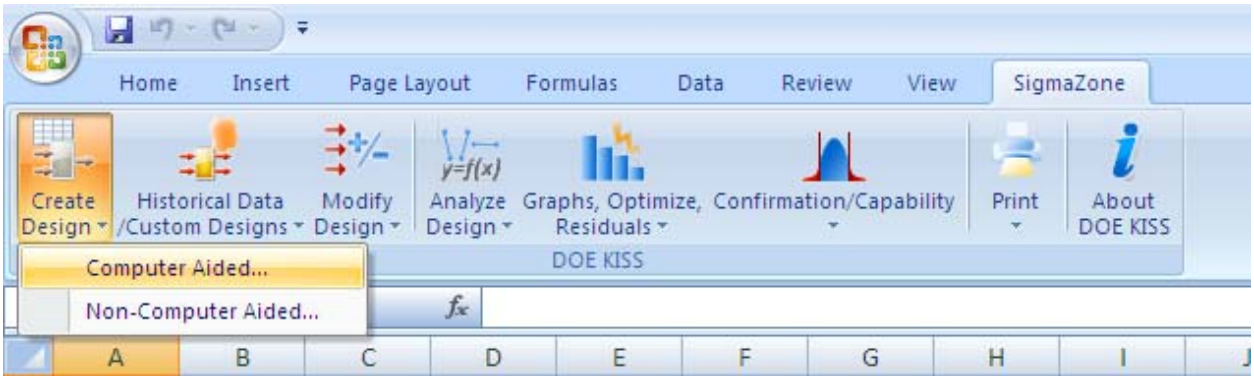
If you can't get to this point then call Air Academy Associates at 1-800-748-1277 for technical support.

4. We are going to use SigmaZone to create a design and do a simple analysis. We'll be working with the following sales process. The script is two different sales pitches that were developed by the marketing team. The Sex is the gender of the person who is called. The experience is the experience level of the sales representative. The goal is to maximize sales. We measure this by the amount of sales in a 1-hour period of time.

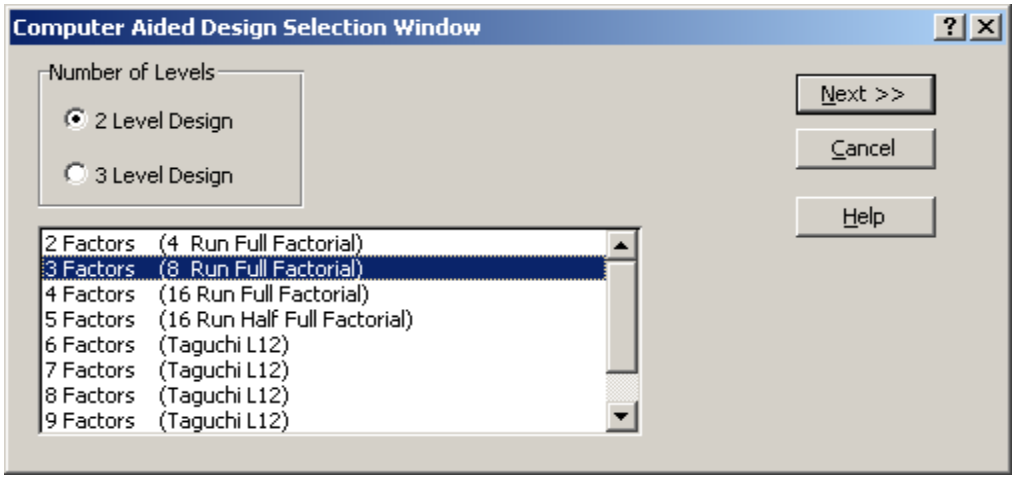


For this problem we have 3 inputs at 2 levels. The flow chart in the front of the text recommends doing a Full Factorial design with at least 5 reps.

5. In SigmaZone select **Create Design > Computer Aided**.

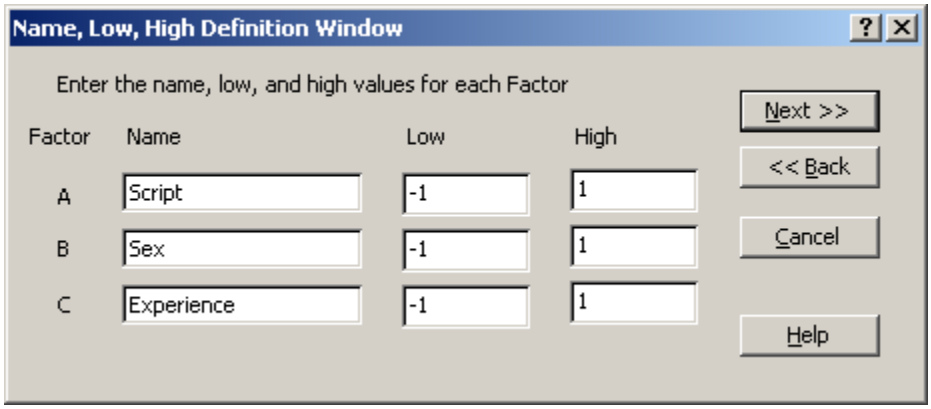


6. For this experiment, there are 3 factors and 8 runs.

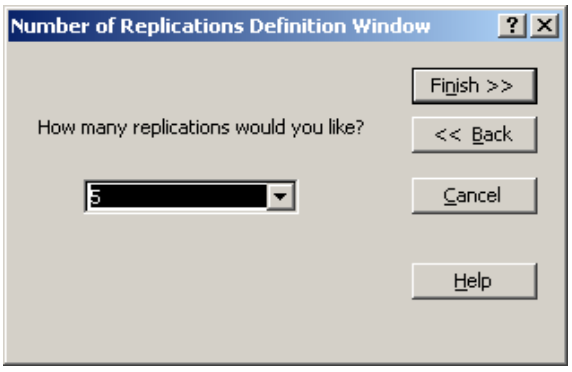


Select **Next** >>

Give the factors meaningful names. You can use the coding convention that Script A =-1 and Script B=+1, Female = -1 and Male = +1, < 6 months experience = -1 and > 1 year experience = +1. Note: In this case it really doesn't matter what you call –1 and +1 as long as you are consistent in the set-up and analysis of the experiment.



Select **Next** >>



Since we are doing a computer-generated design, the 5 replications are automatically selected.

Basically the computer generated design option follows the flow chart in the front of the text.

Select Finish >>

After you select finish, the design matrix is created. At this point we would start to type in the results from our experiment. For example, if an inexperienced sales representative calls females using script A and sells $300 of merchandise we would type in 300 in cell F3.

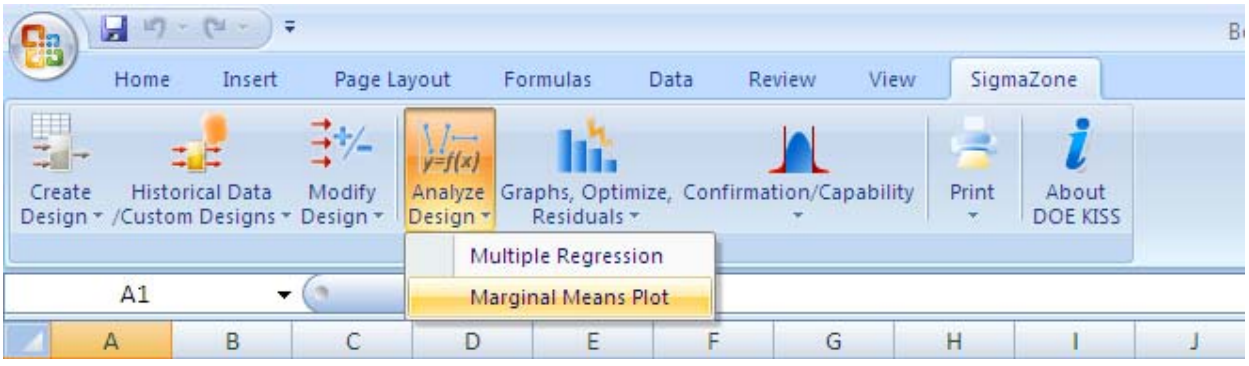
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Factor	A	B	C									
2	Row #	Script	Sex	Experience		Y1	Y2	Y3	Y4	Y5		Y bar	S
3	1	-1	-1	-1								#DIV/0!	#DIV/0!
4	2	-1	-1	1								#DIV/0!	#DIV/0!
5	3	-1	1	-1								#DIV/0!	#DIV/0!
6	4	-1	1	1								#DIV/0!	#DIV/0!
7	5	1	-1	-1								#DIV/0!	#DIV/0!
8	6	1	-1	1								#DIV/0!	#DIV/0!
9	7	1	1	-1								#DIV/0!	#DIV/0!
10	8	1	1	1								#DIV/0!	#DIV/0!

7. Type in the response data (sales $) from the experimental runs. Just pretend you got the values listed below.

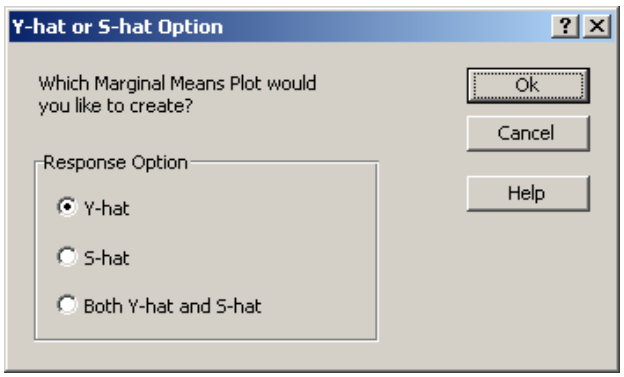
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Factor	A	B	C									
2	Row #	Script	Sex	Experience		Y1	Y2	Y3	Y4	Y5		Y bar	S
3	1	-1	-1	-1		300	250	310	298	265		284.6	25.70603
4	2	-1	-1	1		200	235	267	289	204		239	38.87801
5	3	-1	1	-1		256	450	309	395	410		364	79.31267
6	4	-1	1	1		423	435	390	385	410		408.6	21.26735
7	5	1	-1	-1		245	263	289	245	210		250.4	28.89291
8	6	1	-1	1		305	325	360	209	245		288.8	61.09173
9	7	1	1	-1		256	284	289	266	264		271.8	14.04279
10	8	1	1	1		340	268	302	295	310		303	26.01922
11													

We see that when inexperienced sales representatives call females using script A we average sales of $284.60.

8. Let's do some simple analysis. Select **SigmaZone** > **Analyze Design** > **Marginal Means Plot**

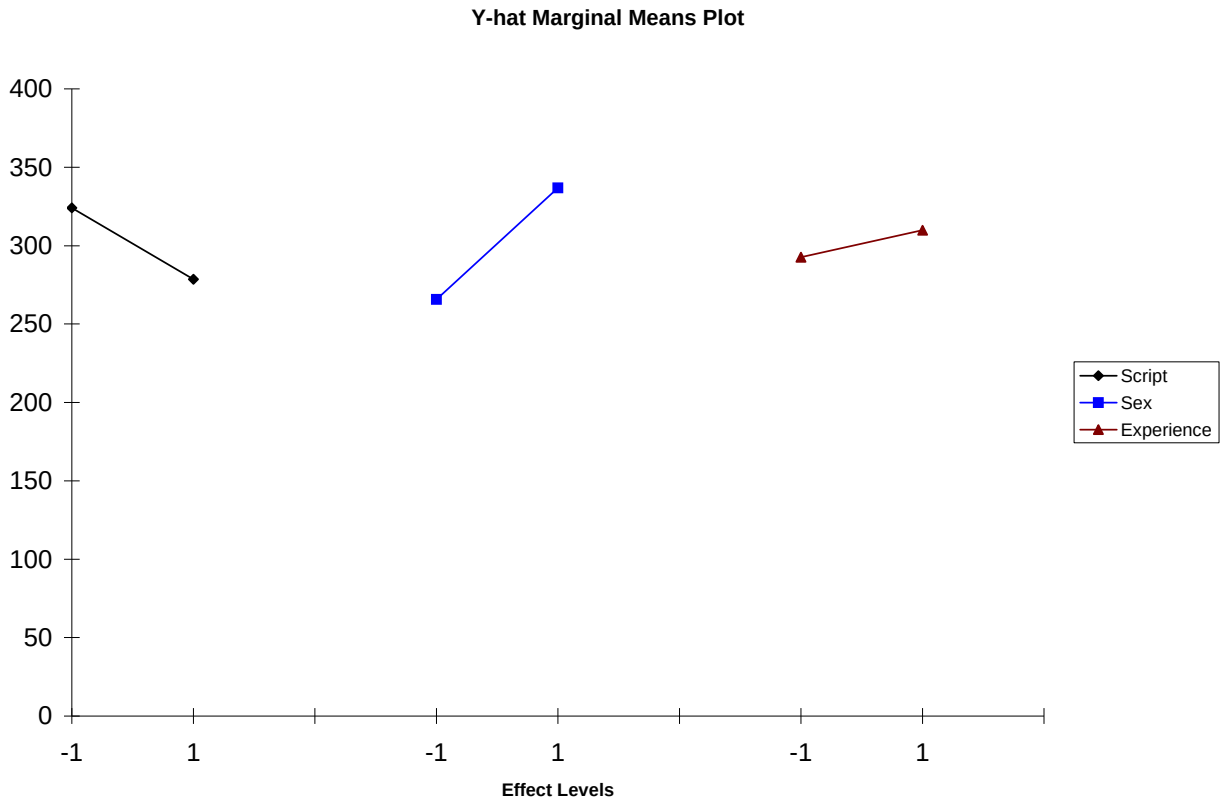


We'll only plot the effects on the process center (y-hat).



Hit **OK**.

It appears that Script and Sex are more important than Experience. You may have to use Excel to adjust the scale and fonts so that your graph looks more like the one below.



We will do much more analysis than shown in this example. The main focus here was just to give you a flavor for the SigmaZone software.

NOTE: The student version is a limited in the number of designs that it will automatically generate. If you try and run a design other than those allowed in the student version you will get the following message.

At first this may appear limiting but we will learn a way around this by using Historical Data / Custom Design > Create Design Matrix. The other option is to buy the full version from www.sigmazone.com. One successful DOE will more than pay for the expense of the software.