1. *Topic Description and Objectives:*

- **CASE 1:** Sample Size Analysis for ANOVA
- Equal group sizes, Equal Variances, Medium Effect Size, Power = .70

2. *MC3G Program Setup (verify the following input before running analysis):*

	Grp 1	Grp 2	Grp 3		Value
Population Mean =	0.31	0.00	-0.31	**# Means to Keep =**	N/A
Population SD =	1.0	1.0	1.0		
Group Size =	16	16	16		
Distribution =	normal	normal	normal	**Direction of Hypothesis =**	ONE-TAILED
Reliability =	1.0	1.0	1.0	**Alpha Level =**	0.05
Integer Data =	N/A	N/A	N/A	**Automatically set...Seed... =**	UNCHECKED
Minimum =	N/A	N/A	N/A	**Integer Seed =**	2040715055
Maximum =	N/A	N/A	N/A	**Number of MC Samples =**	10000

3. *Steps Necessary to Run Analysis:*

- Click on Analysis and "Get N for Power =.70 " or press F7.

4. *MC2G Program Output (based on Input Above):*

# Rejections =	1401	**Actual Mean Group 1 Means =**	0.307
Actual ALPHA / POWER =	0.70050	**Actual Mean Group 2 Means =**	0.002
Desired =	0.7000	**Actual Mean Group 3 Means =**	-0.311
		Actual SE of Group 1 Means =	0.1513
		Actual SE of Group 2 Means =	0.1491
		Actual SE of Group 3 Means =	0.1530

5. *Key Points to Interpret from the Monte Carlo Results:*

- With a medium effect size (0.31, 0.00, and -0.31 for groups 1, 2, and 3, respectively) the sample size required for a power of 0.70 is 42 for each of the three groups. (Note that due to the Monte Carlo procedures use, the suggested sample size may change as you change the seed.)
- The actual means for groups 1, 2, and 3 are 0.307, 0.002 and -0.311, respectively. They differ slightly from the population means.

1. *Topic Description and Objectives:*

- **CASE 2:** Sample Size Analysis for ANOVA
- Equal group sizes, Equal Variances, Small Effect Size, Power = .70

2. *MC3G Program Setup (verify the following input before running analysis):*

	Grp 1	Grp 2	Grp 3		Value
Population Mean =	0.12	0.00	-0.12	**# Means to Keep =**	N/A
Population SD =	1.0	1.0	1.0		
Group Size =	16	16	16		
Distribution =	normal	normal	normal	**Direction of Hypothesis =**	ONE-TAILED
Reliability =	1.0	1.0	1.0	**Alpha Level =**	0.05
Integer Data =	N/A	N/A	N/A	**Automatically set...Seed... =**	UNCHECKED
Minimum =	N/A	N/A	N/A	**Integer Seed =**	111938608
Maximum =	N/A	N/A	N/A	**Number of MC Samples =**	10000

3. *Steps Necessary to Run Analysis:*

- Click on Analysis and "Get N for Power =.70 " or press F7.

4. *MC2G Program Output (based on Input Above):*

# Rejections =	1172	**Actual Mean Group 1 Means =**	0.119
Actual ALPHA / POWER =	0.70348	**Actual Mean Group 2 Means =**	0.002
Desired =	0.7000	**Actual Mean Group 3 Means =**	-0.120
		Actual SE of Group 1 Means =	0.0606
		Actual SE of Group 2 Means =	0.0623
		Actual SE of Group 3 Means =	0.0612

5. *Key Points to Interpret from the Monte Carlo Results:*

- With a medium effect size (0.12, 0.00, and -0.12 for groups 1, 2, and 3, respectively) the sample size required for a power of 0.70 is 276 for each of the three groups. (Note that due to the Monte Carlo procedures use, the suggested sample size may change as you change the seed.)
- Note the increase in the required sample size. For a power of .70 you need 42 subjects per group when using a medium effect size (CASE 1) while you need a sample size of 276 per group when using a small effect size.
- The actual means for groups 1, 2, and 3 are 0.119, 0.002 and -0.120, respectively. They differ slightly from the population means.

1. *Topic Description and Objectives:*

- **CASE 3:** Sample Size Analysis for ANOVA
- Equal group sizes, Equal Variances, Medium Effect Size, Power = .80

2. *MC3G Program Setup (verify the following input before running analysis):*

	Grp 1	Grp 2	Grp 3		Value
Population Mean =	0.31	0.00	-0.31	**# Means to Keep =**	N/A
Population SD =	1.0	1.0	1.0		
Group Size =	16	16	16		
Distribution =	normal	normal	normal	**Direction of Hypothesis =**	ONE-TAILED
Reliability =	1.0	1.0	1.0	**Alpha Level =**	0.05
Integer Data =	N/A	N/A	N/A	**Automatically set...Seed... =**	UNCHECKED
Minimum =	N/A	N/A	N/A	**Integer Seed =**	54615877
Maximum =	N/A	N/A	N/A	**Number of MC Samples =**	10000

3. *Steps Necessary to Run Analysis:*

- Click on Analysis and "Get N for Power =.80 " or press F8.

4. *MC2G Program Output (based on Input Above):*

# Rejections =	2674	**Actual Mean Group 1 Means =**	0.310
Actual ALPHA / POWER =	0.80228	**Actual Mean Group 2 Means =**	-0.001
Desired =	0.8000	**Actual Mean Group 3 Means =**	-0.311
		Actual SE of Group 1 Means =	0.1399
		Actual SE of Group 2 Means =	0.1418
		Actual SE of Group 3 Means =	0.1398

5. *Key Points to Interpret from the Monte Carlo Results:*

- With a medium effect size (0.31, 0.00, and -0.31 for groups 1, 2, and 3, respectively) the sample size required for a power of 0.80 is 51 for each of the three groups. (Note that due to the Monte Carlo procedures use, the suggested sample size may change as you change the seed.)
- Note, to increase power using the same medium effect size as CASE 1, the sample size per group increased from 42 to 51.
- The actual means for groups 1, 2, and 3 are 0.310, -0.001 and -0.311, respectively. They differ slightly from the population means.