What does a "sample size calculator" do for assessment?

For a given project, unless you have the luxury of surveying the entire population of interest a "sample size calculator" helps you determine how many surveys you should send out in order to be able to generalize the findings to that population with a certain degree of assurance.

What do you need to know to get started?

Definitions:

The **Confidence Level** is the probability that your findings are correct within the tolerances that you specify next. The percent indicates how confident you want to be that your results are correct. If you aren't sure what level to use, we *recommend using 95%,* which means that you can say with 95% certainty that your results are correct. (Note: While everyone would like to be 100% confident in their results, the only way that is possible is for you to survey the entire population and have everyone respond!)

The **Confidence Interval** asks "How much error are you willing to tolerate?" Think about this in terms of the polls you see in the news where they say the results are accurate within plus or minus 3%.

> If you aren't sure what percent to use, we *recommend using anywhere between 3-6%.* (Note: Again, while everyone would like to have no uncertainty in their results, the only way that is possible is for you to survey the entire population and have everyone respond!)

Population Size is the total number of people that you could send the survey out to. This is the total number of people to which you will be generalizing your results. For example, your population may be all residential students on your campus. If you have 5000 students living on campus, you would enter 5000 as the population size.

Estimated Response Rate is the average number of people that typically complete your surveys. You may know this if you have calculated it for past assessments you have completed, but if not, use the *national average of 20%.*

> At Lehigh we tend to range between 20% and 30% (when in doubt go with a lower % response rate to be "safe")

Sample Size Needed is a number that is calculated based on your population size and the levels of error and confidence you set. ***This is the number of people that will need to complete your survey in order for your results to be accurate within the tolerances that you set earlier.***

Send Out To is a number calculated by taking the sample size and dividing it by the estimated response rate. Typically we need to invite more people to participate so we can get a completion rate that meets our sample size requirement. For example, if you needed 100 people to complete your survey (100 is your sample size) and you typically have a 20% response rate, your "send out to" would be 500 people (100/0.20).

STUDENT AFFAIRS OFFICE
29 Trembley Drive | University Center | Lehigh University | Bethlehem, PA 18015 | 610-758-3890
www.lehigh.edu/connectwithus

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How about a real example...

First Year Student Assessment: The OFYE wanted to see how first-year students were transitioning to Lehigh both socially and academically. They also wanted to know what resources were helping that adjustment and what students learned during their first few weeks.

The **Confidence Level** measures how likely your data are to be "accurate or reliable".

> **First Year Student Assessment:**
>
> We want to be 95 % confident that the results we get on the FY assessment are correct *("correct" translates to... generalizable to all FY students).*

The **Confidence Interval** asks "How much error are you willing to tolerate?"

> **First Year Student Assessment:**
>
> We can agree to tolerate plus or minus 5% from the true percentage of error

Population Size is the total number of people that you could send the survey out to.
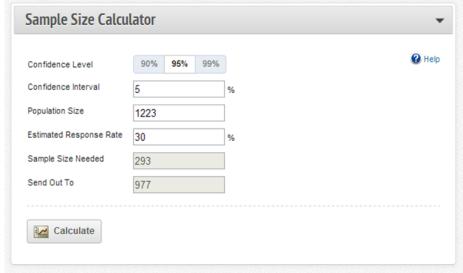
> **First Year Student Assessment:**
>
> The entire first-years student population will be sent the survey (1223 students)

Estimated Response Rate is the average number of people that typically complete your surveys

> **First Year Student Assessment:**
>
> The OFYE decided to push out reminders until they got to a 30% response rate

Sample Size Calculator

Confidence Level	90%	**95%**	99%
Confidence Interval	5	%	
Population Size	1223		
Estimated Response Rate	30	%	
Sample Size Needed	293		
Send Out To	977		

Help

Calculate

WITH THIS INFORMATION YOU CAN USE THE SAMPLE SIZE CALCULATOR!

Sample size needed is a number that is calculated based on your population size and the levels of error and confidence you set.

First Year Student Assessment:

293 FY students need to complete the assessment

Send out to: Typically we need to invite more people to participate so we can get a completion rate that meets our sample size. This is how many the calculator suggests you send your survey out to.

First Year Student Assessment:

977 was the suggested number to send the assessment to in order to get the 293 responses. In reality all first-years students were sent the survey (1223). By increasing the number it goes out to you are increasing your chances of being able to get back the sample size that is needed.

PUT IT ALL TOGETHER....

"If the OFYE wants to be 95% confident that the results of the FY assessment generalize to all FY students, and are willing to tolerate plus or minus 5% from the true percentage in the results, they should send the survey out to at least 977 first year students, expecting a 30% response. With at least 300 responses (293 to be exact) the OFYE can generalize that **"The results of the first-year assessment are representative of all first-year students (within the specified levels of precision and confidence)."**
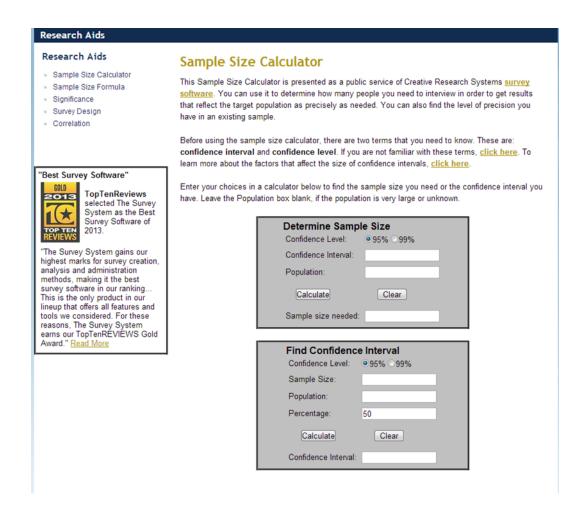
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Student Affairs

Where can I find a sample size calculator?

Campus Labs Baseline Project Dashboard

Creative Research Systems http://www.surveysystem.com/sscalc.htm

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Do I need a full sample size calculator?

Not necessarily. The below chart has been created for you to simplify the seemingly overwhelming process, if you are comfortable with the stated parameters (what we have recommended above).

Table for determining needed size S of a randomly chosen sample from a given finite population of N cases such that the sample proportion p will be within $\pm$ .05 of the population proportion P with a 95 percent level of cofidence.[1]

N	S	N	S	N	S
10	10	220	140	1,200	291
15	14	230	144	1,300	297
20	19	240	148	1,400	302
25	24	250	152	1,500	306
30	28	260	155	1,600	310
35	32	270	159	1,700	313
40	36	280	162	1,800	317
45	40	290	165	1,900	320
50	44	300	169	2,000	322
55	48	320	175	2,200	327
60	52	340	181	2,400	331
65	56	360	186	2,600	335
70	59	380	191	2,800	338
75	63	400	196	3,000	341
80	66	420	201	3,500	346
85	70	440	205	4,000	351
90	73	460	210	4,500	354
95	76	480	214	5,000	357
100	80	500	217	6,000	361
110	86	550	226	7,000	364
120	92	600	234	8,000	367
130	97	650	242	9,000	368
140	103	700	248	10,000	370
150	108	750	254	15,000	375
160	113	800	260	20,000	377
170	118	850	265	30,000	379
180	123	900	269	40,000	380
190	127	950	274	50,000	381
200	132	1,000	278	75,000	382
210	136	1,100	285	100,000	384

Note: N is population size; S is sample size

[1] Source: Krejcie, R.V. & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement,* 30, 607-610.

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