

## NSSE Institutional Data Quality Analysis

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**Highlights:**

- ❖ Overall, the quality of CSU’s NSSE data is good with above average response rates and reasonable sampling error in the most recent administration
- ❖ CSU’s NSSE sample is proportionally representative of CSU’s population across minority status, first generation status, and Pell Grant recipient status
- ❖ CSU’s NSSE samples over represent females and full-time students and NSSE respondents appear to have higher levels of academic achievement

The National Survey of Student Engagement (NSSE) is an online survey sent to freshmen and senior students at CSU at least every three years. The NSSE yields data that CSU can use to improve the undergraduate experience both in and out of the class room. However, survey data is inherently subject to response bias and for the NSSE results to be meaningful, the quality of the data needs to be evaluated. The purpose of this research brief is to examine the quality of CSU’s NSSE data by looking response rates, sampling error, and proportional representation. Table 1 displays these descriptive statistics as well as the overall NSSE response rates for comparison.

Table 1  
*NSSE Response Rates, Sampling Error, and Sample Size*

	Response Rate				Sampling Error		Sample Size	
	CSU NSSE		NSSE Average		CSU NSSE		CSU NSSE	
	First Year	Senior Year	First Year	Senior Year	First Year	Senior Year	First Year	Senior Year
2001	45%		42%		6.2%	5.1%	224	220
2002	27%		41%		5.5%	6.0%	290	203
2003	49%	40%	42%	44%	5.7%	6.3%	286	232
2005	25%	33%	36%	38%	8.7%	7.6%	122	159
2007	17%	25%	29%	31%	3.7%	2.8%	597	900
2008	20%	22%	31%	31%	3.1%	2.9%	773	900
2009	34%	41%	29%	34%	4.9%	3.9%	338	538

Response rates in 2001, 2003, and 2009 are considerably higher than the NSSE average, but the remaining years’ rates fall below average. This variation could be due to differences in survey administration procedures and may indicate that CSU students respond to concerted efforts to improve survey response. CSU’s sampling error is larger than the preferred level of error (3% to 5%) in the years that the sample size is less than 500. A larger sampling error can be problematic because there is less certainty around a point estimate. The 2012 survey administration will be census style which should generate a sample size greater than 500 helping to mitigate the sampling error.

Proportional representation also needs to be examined because response bias can be an issue when sub-groups of students respond to the NSSE survey invitation at different rates. If the proportions of students who respond are demographically different then the population there is a possibility of response bias. Commonly found correlates of non-response to student surveys in higher education include gender, minority status, socio-economic status, and academic achievement; therefore, proportional representation of CSU's NSSE sample is explored across gender, minority status, first generation status, Pell Grant recipient status, and enrollment level. Academic achievement is evaluated by comparing the average high school and CSU GPAs.

Proportional representation is evaluated by comparing CSU's population parameters to the NSSE statistic, plus or minus its margin of error for a 95% confidence interval. If CSU's demographics fall within the margin of error, we can be relatively confident that the NSSE sample proportionally represents CSU's population. If CSU's parameters fall outside the margin of error, it indicates that our NSSE respondents demographically differ from the general student population which can introduce response bias. Table 2 displays CSU's population parameters and NSSE sample statistics with a margin of error computed across all seven NSSE administrations. The red font highlights where the parameter falls outside the statistic's margin of error.

Table 2

*Demographic, Socioeconomic and Academic Comparison of NSSE Sample and CSU Population*

	Fall 2000, 2001, 2002, 2004, 2006, 2007 & 2008					
	First Year			Seniors		
	CSU Population	NSSE Sample	(+/-)	CSU Population	NSSE Sample	(+/-)
% Female	<b>52.4%</b>	<b>64.8%</b>	<b>1.8%</b>	<b>51.2%</b>	<b>59.6%</b>	<b>1.7%</b>
% Minority	14.2%	13.5%	1.3%	11.1%	10.9%	1.1%
% First Generation	27.4%	27.0%	1.7%	28.0%	27.8%	1.6%
% Full time	<b>95.8%</b>	<b>94.8%</b>	<b>0.9%</b>	<b>82.2%</b>	<b>89.9%</b>	<b>1.1%</b>
% Pell Grant Recipients	13.5%	14.2%	1.3%	20.7%	20.9%	1.4%
Average HS GPA	<b>3.49</b>	<b>3.54</b>	<b>0.02</b>	<b>3.56</b>	<b>3.62</b>	<b>0.02</b>
Average CSU GPA	<b>2.76</b>	<b>2.92</b>	<b>0.03</b>	<b>3.06</b>	<b>3.17</b>	<b>0.02</b>

CSU's NSSE sample is not a perfect representation of CSU's population because female and full-time students are over represented. However, it does appear to be representative of first-generation students, Pell Grant recipients, and minority students. Thus, the sample is not proportionally representative in some expected ways, but overall is a useful data source for exploring levels of student engagement.

Future work may explore if responses to the NSSE survey vary across gender and enrollment status. If NSSE responses vary across these variables weights can be used to account for any response bias introduced by the proportional disparities.

Please contact the Office of Institutional Research with any questions/comments.