

**Office of Academic  
Planning and Assessment**

A Longitudinal Report of Results from the Course-Embedded American Government  
Assessment - 2015-2018

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With the implementation of the new core curriculum at SHSU in 2014, and the adoption of the Texas Higher Education Coordinating Board's (THECB) Core Learning Objectives (i.e., critical thinking, communication, empirical and quantitative reasoning, teamwork, personal responsibility, social responsibility), Sam Houston State University (SHSU) implemented a robust plan for assessing student attainment of these Core Learning Objectives. In an effort to assess student social responsibility, the Office of Academic Planning and Assessment (OAPA) has partnered with the Department of Political Science to conduct an annual assessment within sections of POLS 2305: American Government. At the outset of this project, the expectation was that students enrolled in POLS 2305 would show statistically significant gains in performance from pre-to-post each semester. This report details the longitudinal results from these assessments for fall 2015, fall 2016, fall 2017, and fall 2018. A discussion of these data is provided, along with recommendations for actions based on the observed results.

**Description of the Course-Embedded American Government Assessment**

Each fall, a locally developed pre- to post-test is administered within sections of POLS 2305: American Government. The instrument consists of 12 multiple-choice questions and is administered at the start and end of the fall semester. The instrument was developed by the faculty of the Department of Political Science for use as part of their on-going programmatic assessment. As the instrument was locally developed by faculty from the Department of Political Science, it is assumed that instrument has content-related validity (Banta & Palomba, 2015). Additionally, as this test was embedded within the POLS 2305: American Government

courses, the student scores represent authentic student work (Banta & Palomba, 2015; Kuh et al. 2015).

The student data presented within this report reflect student performance regarding the Texas Higher Education Coordinating Board's Core Learning Objective of Social Responsibility (THECB, 2018). The THECB (2018) defines Social Responsibility as "intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities." Data from this assessment may therefore specifically align with the "knowledge of civic responsibility" element of the broader concept of Social Responsibility.

### **Methodology**

Each fall semester, faculty teaching POLS 2306: American Government administer the Course-Embedded American Government Assessment to students in a pre-to-post fashion. In order to determine whether student performance increased from pre-to-post, a dependent samples *t*-test is used for analysis. Each year, student identification numbers were collected along with student scores in order to identify each student's score on both the pre- and post-test. All statistical analysis was conducted on only those students for whom both pre- and post-test scores could be identified. The total number of students examined for each fall semester were: fall 2015 – 361, fall 2016 – 528, fall 2017 – 750, and fall 2018 - 628.

Prior to conducting inferential statistics to determine whether differences were present between the students' pre- to post-test scores, checks were conducted to determine the extent to which these data were normally distributed. The standardized skewness and kurtosis coefficients (i.e., the skewness and kurtosis values divided by their standard error) were consistently outside the limits of normality of +/-3 (Onwuegbuzie & Daniel, 2002) each academic year. Therefore,

non-parametric Wilcoxon's dependent samples *t*-tests (Huck, 2007) were conducted to analyze student performance on this assessment from pre-to-post each year. A complete breakdown of the standardized skewness and kurtosis coefficients is located in Table 1.

Table 1  
*Standardized Skewness and Kurtosis Values for Student Scores, 2015-2018*

Semester	Standardized Skewness Coefficient	Standardized Kurtosis Coefficient
Fall 2015		
Pre-Test	-7.51	6.22
Post-Test	-9.36	8.96
Fall 2016		
Pre-Test	-6.66	3.77
Post-Test	-15.28	24.48
Fall 2017		
Pre-Test	-9.20	4.33
Post-Test	-8.86	5.53
Fall 2018		
Pre-Test	-7.83	3.73
Post-Test	-12.69	14.20

### Results

Non-parametric Wilcoxon's dependent sample *t*-tests revealed statistically significant differences in the pre- to post-scores for students enrolled in POLS 2305: American Government for fall 2015,  $z = -6.98, p < .001$ ; fall 2016,  $z = -8.28, p < .001$ ; fall 2017,  $z = -9.86, p < .001$ ; and fall 2018,  $z = -7.29, p < .001$ . These differences represented small to moderate effect sizes (Cohen's *d*) (Cohen, 1988). Readers are directed to Table 2 for the descriptive statistics for student pre- and post-test scores.

Table 2

*Descriptive Statistics for Student Pre- and Post-Scores on Course-Embedded Assessments in POLS 2305: American Government, 2015-2018*

Semester	<i>n</i>	Pre-Test				Post-Test				<i>z</i>	<i>p</i>	Cohen's <i>d</i>
		<i>M</i>	<i>SD</i>	<i>M%</i>	<i>SD%</i>	<i>M</i>	<i>SD</i>	<i>M%</i>	<i>SD%</i>			
Fall 2015	361	9.29	1.74	77.45	14.52	9.94	1.54	82.87	12.84	-6.98	< .01	0.40
Fall 2016	528	9.14	1.68	76.20	14.00	10.07	1.62	83.88	13.48	-11.36	< .01	0.56
Fall 2017	750	9.02	1.78	75.18	14.85	9.77	1.54	81.41	12.87	-10.67	< .01	0.45
Fall 2018	628	9.33	1.58	77.76	13.17	9.80	1.51	81.67	12.61	-7.29	< .01	0.30

*Note.* Cohen's *d* from 0.2 – 0.49 indicate a small effect size, 0.50-0.79 indicate a moderate effect size, and 0.80 and higher indicate a large effect size (Cohen, 1988).

Students enrolled in POLS 2305: American Government demonstrated score increases from pre-to-post each academic year; however, these increases were small. Score increases ranged from a low of 3.71% (fall 2018) to a high of 6.7% (fall 2016). Consequently, these small percentage increases equated to small average increases in the number additional questions answered correctly from pre-to-post, ranging from a low of 0.47 questions (fall 2018) to a high of 0.80 questions (fall 2016) on a 12 question test.

Further details regarding student performance are gained through an examination of the distribution of the total number of questions answered correctly by students on both the pre- and post-test each academic year. An analysis of these results revealed a pattern of increasing student performance that was consistent over time. A full breakdown of these data are provided in Table 3.

Table 3

*Distribution of Numbers of Students Correctly Answering Test Questions (Pre- and Post-test), 2015-2018*

Total Number of Questions Answered Correctly by the Students	Fall 2015		Fall 2016		Fall 2017		Fall 2018	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
1	1	0	0	2	0	0	0	0
2	0	1	0	1	2	0	0	1
3	1	0	3	1	4	2	0	0
4	3	0	5	1	7	1	6	6
5	6	4	7	3	21	4	10	7
6	14	8	20	8	31	23	18	4
7	27	13	42	15	70	24	38	25
8	42	28	88	38	117	82	90	54
9	87	58	123	76	159	153	149	118
10	86	98	131	158	184	203	167	198
11	71	109	79	132	126	168	119	159
12	23	42	30	93	29	90	31	56

*Note.* The total number of students for each year were: 2015 – 361, 2016 – 528, 2017 – 750, 2018 – 628.

Additional important information can be gained through an analysis of student pre- and post-test performance by test question for each academic year. Again, this analysis revealed consistent patterns in student performance across all years. Students made clear pre-to-post gains for Questions 1, 3, 6, and 11 and made limited to no pre-to-post gains for Questions 2, 4, 5, 7, 8, 9, 10, and 12. For the questions on which students made limited to no gains, several questions (Questions 2, 5, 7, 10, 12) had average student scores above 90% for both the pre- and post-test.

There were also several questions on which students seemed to still underperform on the post-test. Although students made gains on both Question 1 and Question 11, their overall post-test performances for these questions were lower than others. The highest average post-test score for Question 1 was 53.70% (fall 2015) and the lowest was 44.80% (fall 2017). The highest average post-test score for Question 11 was 85.04% (fall 2016) and the lowest was 75.30% (fall

2015). For Question 4, 8, and 9, students not only made limited to no gains, but also demonstrated lower average post-test performance. The highest average post-test score for Question 4 was 79.50% (fall 2015) and the lowest was 74.68% (fall 2018). The highest average post-test score for Question 8 was 85.30% (fall 2015) and the lowest was 74.84% (fall 2018). The highest average post-test score for Question 9 was 53.79% (fall 2016) and the lowest was 47.13% (fall 2018). A full breakdown of the percentages of students who answered each question correctly on the pre- and post-test are provided in Table 4.

Table 4

*Student Pre- and Post-Test Question Performance, 2015-2018*

Test Question	Fall 2015		Fall 2016		Fall 2017		Fall 2018	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Question 1	40.70%	53.70%	29.75%	50.57%	30.27%	44.80%	32.16%	47.45%
Question 2	94.50%	95.60%	94.13%	96.40%	95.07%	95.60%	97.13%	95.86%
Question 3	82.00%	93.40%	77.46%	93.56%	76.26%	91.33%	81.69%	90.45%
Question 4	76.50%	79.50%	75.75%	78.98%	74.93%	74.53%	78.34%	74.68%
Question 5	94.50%	98.10%	94.89%	95.45%	93.20%	97.33%	93.15%	95.22%
Question 6	75.60%	84.80%	77.27%	88.26%	75.73%	89.33%	82.16%	92.68%
Question 7	92.50%	95.00%	92.99%	93.75%	93.60%	94.53%	94.43%	93.47%
Question 8	78.10%	85.30%	75.00%	82.95%	75.07%	77.47%	73.73%	74.84%
Question 9	43.80%	49.30%	43.37%	53.79%	37.07%	48.00%	43.15%	47.13%
Question 10	93.40%	93.60%	94.51%	96.02%	91.74%	93.33%	94.11%	94.74%
Question 11	68.10%	75.30%	64.77%	85.04%	67.73%	77.73%	69.43%	79.94%
Question 12	89.80%	90.90%	92.23%	92.42%	91.73%	92.93%	93.63%	93.63%

*Note.* The total number of students for each year were: 2015 – 361, 2016 – 528, 2017 – 750, 2018 – 628.

### Discussion

Social responsibility represents an important skill for students to gain prior to graduation, and knowledge of civic responsibility is major component of that larger learning objective.

POLS 2305: American Government represents an important curricular intervention for helping students at SHSU gain knowledge in these important areas. Examining the longitudinal results

from this assessment reveals both strengths and weaknesses in student learning in these areas. Overall, students did demonstrate statistically significant gains, from pre-to-post, each year. However, the small to moderate effect sizes of these gains calls into question their practical significance. An examination of the total mean gains in the number of additional questions answered correctly on the post-test for each year reveals that students, on average, answered only 0.70 additional questions correct from pre-to-post on a 12-question exam for the examined period.

A possible explanation for these limited gains is a ceiling effect for portions of the exam. Overall, students are already performing at a relatively high level on the pre-test, with an average pre-test score of 76.65%. This conclusion is supported by the more in-depth item analysis, which demonstrated students scoring in the 80-90% range on the pre-test for six of the twelve exam questions (Questions 2, 3, 5, 7, 10, 12).

Despite the possible ceiling effect for portions of the exam, the individual item analysis did show that students were making gains on several questions (Questions 1, 3, 6, 11). This should be seen as a positive as it was students gains in these questions that drove the overall increases observed in student performance each academic year. However, further statistical analysis would be needed to determine whether or not these individual question gains were statistically significant. The individual item analysis also revealed several questions on which students still underperformed on the post-test (Questions 1, 4, 8, 9, 11). Students particularly struggled with Questions 1 and 9, with average post-test scores in the 40-50% range. Student post-test scores were higher for Questions 4, 8, and 11, with average post-test scores in the 70-80% range. These results strongly indicate that there are some areas of expected knowledge,



particularly those areas measured by Questions 1 and 9, which students are not mastering by the end of the course.

### **Recommendations**

Based upon the examination of the data collected from 2015-2018 in POLS 2305: American Government, several recommendations are provided here for improvement. Not only is this course a required part of SHSU's core curriculum, it also represents an important curricular intervention for improving student civic and social responsibility. First, given the potential ceiling effect observed with several questions of the instrument, the Department of Political Science should strongly consider making revisions to the instrument. The high pre-test scores observed for Questions 2, 3, 5, 7, 10, and 12 suggest that most students are entering the course already knowing the information being evaluated by these questions. These questions could potentially be eliminated to allow for different questions assessing other areas of knowledge, or could be revised to assess deeper student learning in those areas. Additionally, the high levels of student pre-test performance on Questions 2, 3, 5, 7, 10, and 12 could indicate possible opportunities for curricular and content changes within the course. If most students are entering the course already proficient in the areas of knowledge assessed by these questions, then faculty teaching the courses could spend less instruction time on this content and could potentially incorporate more advanced knowledge and topics.

The item analysis also revealed several questions for which the student post-test scores were low (Questions 1, 4, 8, 9). In particular, student post-test performance on Questions 1 and 9 were problematic, with average post-test scores for those questions being in the 40-50% range. Furthermore, student performance on these questions was consistent over the examined time period. These data indicated that there are several areas of knowledge, as measured through

these questions, which the students are still lacking by the end of the course. This pattern of student performance could indicate that student struggles on these questions were not isolated to one population of students or one individual semester. The Department should strongly consider examining the knowledge areas evaluated through these questions and determine what changes may be needed to POLS 2305: American Government to improve student learning and performance within them.

Finally, while the data gathered through the assessment of POLS 2305: American Government have been useful, data have only been gathered from in-person course sessions thus far. At this time, student performance in online sections of the course has not been examined and compared to that of in-person course sections. It would be expected that student performance within online sections should be equitable to that of in-person sections; however, if differences do exist these differences need to be identified and addressed. Therefore, a plan should be developed to ensure that all sections of POLS 2305: American Government will be evaluated moving forward.

## References

- Banta, T. W., & Palomba, C. A. (2015). *Assessment essentials: Planning implementing, and improving assessment in higher education* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Huck, S. W. (2007). *Reading statistics and research* (5th ed.). New York, NY: Addison Wesley.
- Kuh, G. D., Ikenberry, S. O., Jankowski, N. A., Cain, T. R., Ewell, P. T., Hutchings, P., Kinzie, J. (2015). *Using evidence of student learning to improve higher education*. San Francisco, CA: Jossey-Bass.
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9*(1), 73-90.
- Texas Higher Education Coordinating Board. (2018). Elements of the Texas Core Curriculum. Retrieved from: <http://www.thecb.state.tx.us/index.cfm?objectid=427FDE26-AF5D-F1A1-E6FDB62091E2A507>