

PCOA School Outcomes for Students Nearing the End of Their Didactic Curriculum: 2019

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Introduction

This report covers the results of the Pharmacy Curriculum Outcomes Assessment® (PCOA®) administrations for the 2019 Accreditation Council for Pharmacy Education (ACPE) reporting cohort, which consists of students testing with a free voucher as third-year (or equivalent) PharmD students in any of the 2018 and 2019 PCOA testing windows listed below.

- ◆ Window 4 2018: 8/20/2018 – 9/14/2018
- ◆ Window 5 2018: 11/12/2018 – 12/7/2018
- ◆ Window 1 2019: 1/14/2019 – 2/15/2019
- ◆ Window 2 2019: 4/8/2019 – 5/17/2019
- ◆ Window 3 2019: 6/17/2019 – 6/28/2019

This report presents descriptive statistics for PCOA test scores at the school level.

The PCOA is a 200-item examination that covers content from four primary domains: Basic Biomedical Sciences, Pharmaceutical Sciences, Social/Behavioral/Administrative Sciences, and Clinical Sciences. PCOA scores are reported on a scaled-score metric for the overall examination and for each of the four major content domains. Scaled scores account for the difficulty of the items and can be compared across administrations.

Results

The 2019 ACPE reporting cohort contained 14,481 students from 140 schools and colleges of pharmacy. Average scaled scores were computed for each school, and a summary of these mean scores at the overall exam level is provided in Table 1 (average school-level test scores). The school-level mean test scores averaged 343.8 with a standard deviation (SD) of 25.3. The median of the school-level mean test scores was slightly above the mean at 347.0.

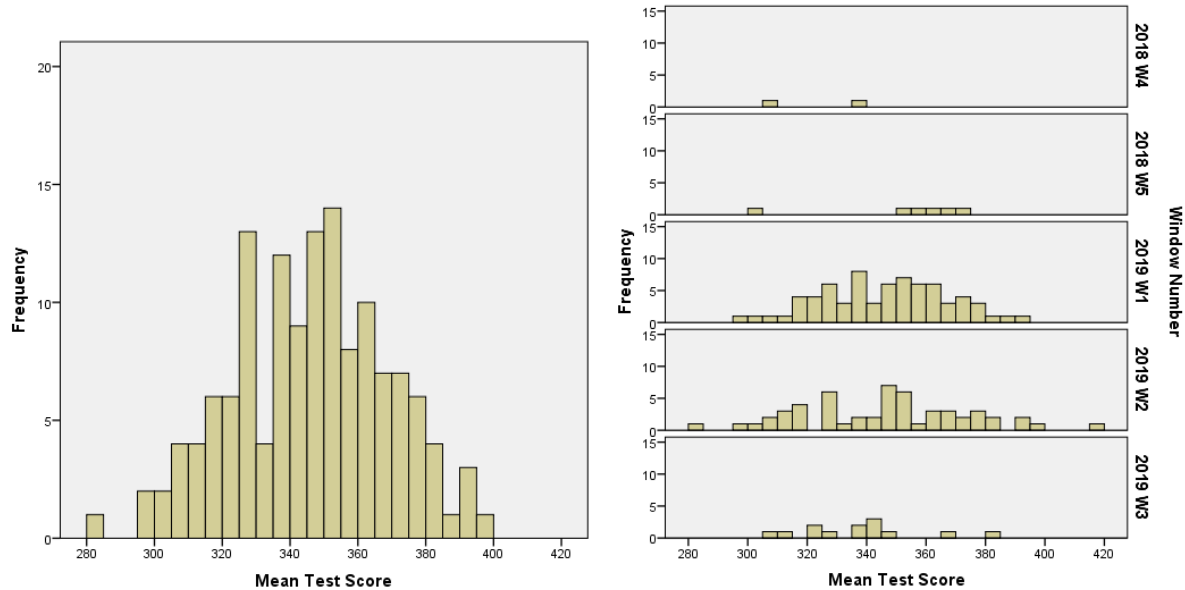
Table 1: *PCOA 2019 Reporting Cohort Exam Summary*

		Window 4 2018	Window 5 2018	Window 1 2019	Window 2 2019	Window 3 2019	Overall
Number of students		190	533	7,134	5,201	1,423	14,481
Number of schools		4	6	72	55	13	140
Average school-level scores	Mean	300.0	352.5	343.4	344.3	336.9	343.8
	Median	292.5	359.5	347.5	347.0	337.0	347.0
	Standard Deviation	29.2	25.2	24.4	29.8	21.2	25.3

Note: Ten schools tested students across two windows.

Figure 1 provides histograms of school-level mean test scores for a fuller picture of the variability in school-level outcomes.

Figure 1: *Distributions of School-Level Mean Test Scores Overall and by Window*



ACPE has historically (for the North American Pharmacist Licensure Examination® and the Multistate Pharmacy Jurisprudence Examination®) used a flagging criterion of 2 SD below the mean to identify scores that show a defined level of “departure” from a measure of central tendency. The scaled scores (rounded to the nearest integer) for flagging schools whose scores were at least 2 SD below the average school-level mean in the 2018-2019 cohort are indicated in Table 2. Using these scores, four schools would be flagged for performance deviation at the overall exam level. Table 3 contains average overall scores and content area scores by school. There were 74 unique overall school-level scores across the 136 schools, and the score rank column in Table 3 indicates the rank of overall score among all unique scores observed. Shaded cells indicate scores that fall 2 SD below the average school-level mean.

Table 2: Means, SDs of School-Level Means, and Scores 2 SD Below Mean

Test Score	Average of school means	SD of school means	Score 2 SD below mean
Overall	343.8	25.3	293
Basic Biomedical Sciences (Area 1)	347.5	30.9	286
Pharmaceutical Sciences (Area 2)	343.8	27.4	289
Social/Behavioral/Administrative Sciences (Area 3)	341.6	30.6	280
Clinical Sciences (Area 4)	346.2	27.2	292

Table 3: Average Test Scores by School Sorted by Average Overall Score (shaded cells indicate scores that fall below 2 SD of the mean shown in Table 2)

School	Overall	Area 1	Area 2	Area 3	Area 4	N
1	264	244	267	255	273	71
2	266	292	261	268	261	69
3	278	284	282	266	279	83
4	284	296	282	265	295	53
5	296	290	296	305	293	72
6	299	303	308	296	290	145
7	302	295	307	277	313	51
8	303	355	311	287	292	38
9	305	285	323	296	300	230
9	305	312	305	285	314	78
10	307	319	303	279	324	43
11	308	309	309	296	315	134
12	310	322	303	335	302	46
13	311	308	305	296	325	72
14	313	312	309	302	325	67
15	314	295	323	304	315	194
16	316	314	311	337	311	60
16	316	334	299	304	335	79
16	316	345	302	322	319	59
17	317	341	318	310	314	80
17	317	300	302	309	341	64
18	318	297	311	315	334	56
19	320	349	318	323	315	225
20	321	300	327	295	336	52
21	322	316	322	328	322	49
22	323	355	336	311	311	275
23	324	339	342	308	312	295
23	324	349	327	328	315	73

School	Overall	Area 1	Area 2	Area 3	Area 4	N
24	325	320	327	326	325	207
24	325	338	320	335	321	36
24	325	319	315	338	328	101
24	325	319	328	314	331	163
25	326	298	325	336	330	73
25	326	344	319	289	351	78
26	327	322	328	323	332	154
26	327	327	322	312	342	58
26	327	335	332	308	331	99
26	327	315	310	338	340	82
27	328	341	326	309	337	206
28	329	326	324	354	324	74
28	329	321	314	348	337	107
29	331	337	337	331	324	178
30	333	329	339	325	336	133
30	333	324	342	324	333	96
30	333	343	330	338	330	135
31	335	331	331	347	335	51
31	335	357	335	277	364	55
32	336	357	327	362	325	55
32	336	361	324	343	338	80
32	336	345	328	352	335	98
33	337	340	349	332	328	85
33	337	349	347	338	327	209
33	337	351	319	366	338	62
34	338	381	340	302	346	45
35	339	348	335	335	344	104
35	339	350	345	344	329	150
35	339	315	344	336	345	119
36	340	359	346	333	336	150
36	340	366	350	353	320	75
36	340	337	337	339	344	63
37	341	345	340	317	357	129
37	341	326	333	349	350	70
38	343	346	344	321	355	100
38	343	317	330	335	368	57
39	344	369	354	316	345	32
39	344	319	348	329	356	87
40	345	333	342	350	350	99
40	345	343	353	340	342	85
41	346	373	355	322	347	203
42	347	384	343	342	346	116

School	Overall	Area 1	Area 2	Area 3	Area 4	N
42	347	325	339	345	364	52
42	347	354	349	341	350	93
42	347	355	345	342	350	184
43	348	316	349	347	359	47
43	348	349	338	364	352	73
44	349	370	346	361	344	132
44	349	350	358	360	337	149
44	349	388	354	328	350	72
44	349	342	350	350	351	105
45	350	378	353	388	326	103
46	351	371	343	365	348	76
46	351	356	366	348	340	86
47	352	337	352	371	348	105
47	352	358	349	363	348	135
47	352	387	350	365	341	112
47	352	348	366	345	346	84
47	352	342	346	343	367	97
48	353	335	358	359	353	164
48	353	371	365	353	340	162
48	353	385	341	373	348	69
49	354	334	337	381	366	96
49	354	334	351	359	362	129
49	354	355	345	363	360	136
50	355	344	354	357	360	79
50	355	345	361	347	357	57
50	355	345	356	367	353	119
51	356	337	342	365	373	138
51	356	368	359	360	349	117
52	357	359	360	363	354	48
52	357	379	342	351	372	138
53	358	361	363	369	349	82
54	360	345	350	370	373	92
54	360	360	366	356	359	131
54	360	348	346	380	369	88
55	361	350	358	355	372	66
55	361	401	359	367	351	144
55	361	373	369	358	355	105
56	362	357	367	355	365	61
56	362	332	366	327	388	52
56	362	383	374	355	353	46
57	364	416	366	343	364	123
58	365	384	378	356	357	107

School	Overall	Area 1	Area 2	Area 3	Area 4	N
59	367	384	357	371	372	86
59	367	370	353	352	393	58
59	367	360	368	368	371	112
59	367	372	374	394	349	260
59	367	376	376	373	356	152
60	368	385	356	372	376	80
61	371	375	373	361	376	93
62	372	371	382	372	366	130
62	372	397	373	372	369	86
62	372	376	369	396	364	36
63	373	414	369	381	366	150
63	373	420	383	362	362	115
64	374	357	372	369	387	159
65	375	355	383	378	374	119
65	375	374	369	361	391	158
65	375	383	371	396	369	136
66	378	368	386	371	382	80
66	378	362	377	382	383	141
67	379	412	390	372	369	163
68	380	353	366	399	396	86
68	380	364	401	386	367	137
69	381	383	383	358	396	41
69	381	350	379	366	402	76
70	389	396	385	371	405	81
71	390	352	395	365	414	58
72	392	431	393	379	393	104
73	393	369	416	365	396	101
74	398	399	406	390	398	57

The standard error of the school means can also be accounted for when evaluating the relative performance of schools on the PCOA. Figure 3 provides a plot of the 95% confidence bands for the overall test scores by school. The vertical reference lines indicate the mean (center line) and scores 2 SD below (left) and above (right) the mean. The confidence bands indicate the degree of sampling error in each school’s mean test score. The performance for two schools should be considered similar if their confidence bands overlap. Similarly, a school should be considered as performing similar to a criterion (ie, 2 SD below the mean, average performance) if its confidence band clearly contains the criterion score. It can be seen from Figure 3 that three of the four schools flagged for performance deviation show performance that is significantly lower than 2 SD below the mean.

Figure 3: 95% Confidence Bands for Overall Test Score

Note: The three vertical lines indicate (from left to right): mean - 2 SD, mean (from Table 2), and mean + 2 SD.

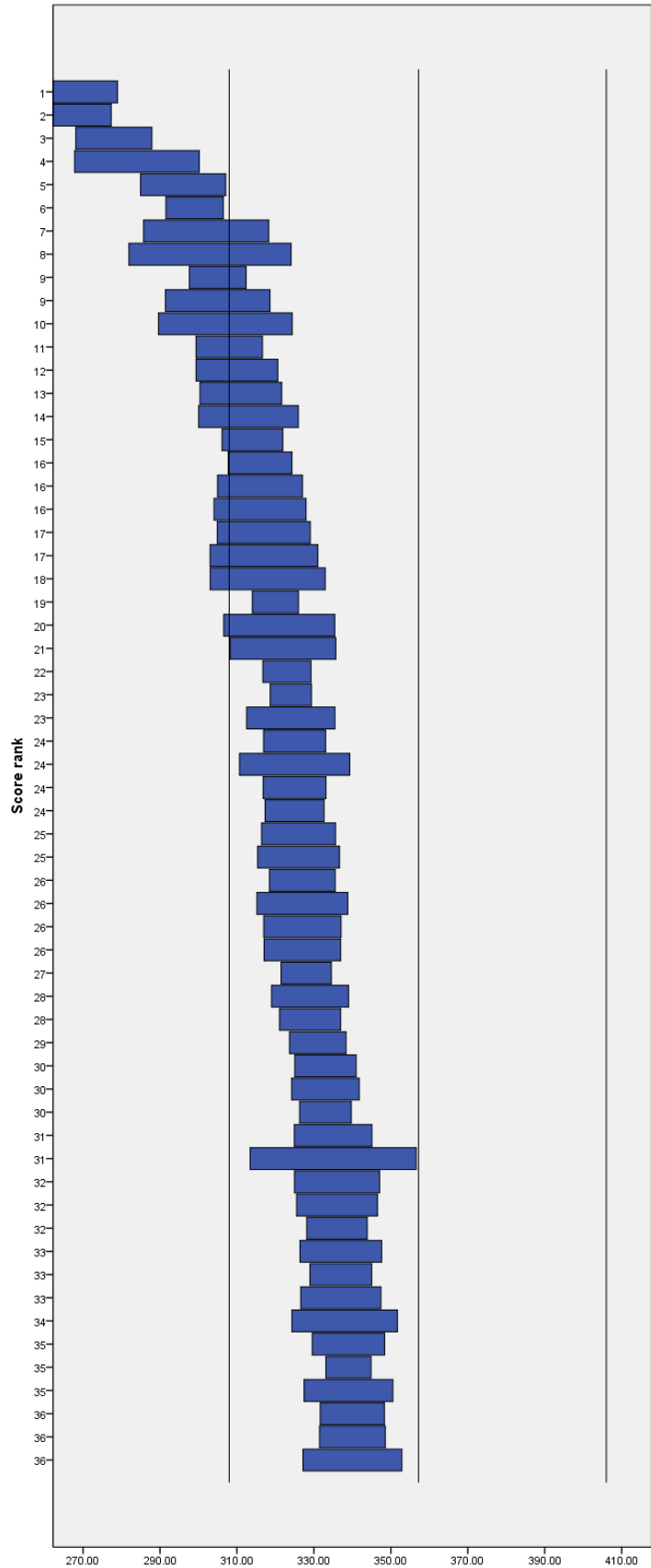


Figure 3, continued: 95% Confidence Bands for Overall Test Score

Note: The three vertical lines indicate (from left to right): mean - 2 SD, mean (from Table 2), and mean + 2 SD.

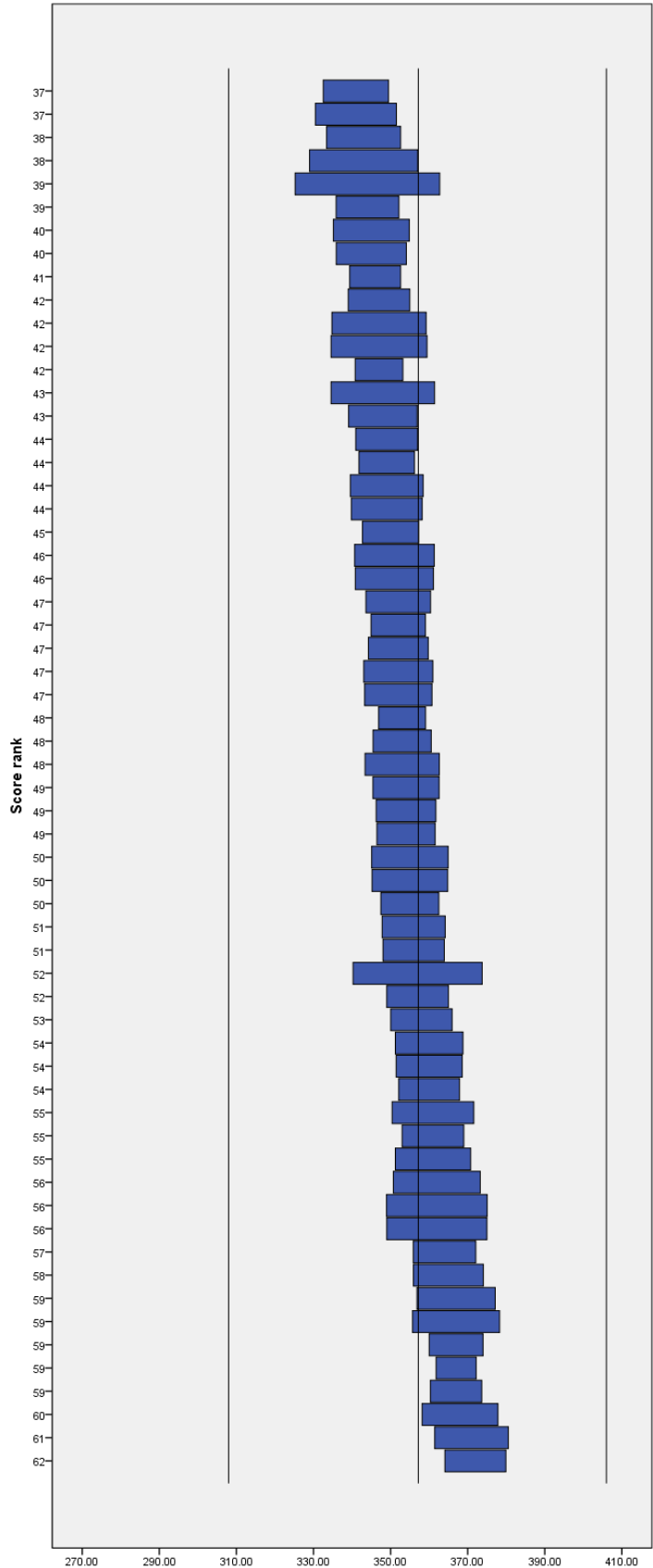


Figure 3, continued: 95% Confidence Bands for Overall Test Score

Note: The three vertical lines indicate (from left to right): mean - 2 SD, mean (from Table 2), and mean + 2 SD.

