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Short-term Offerings of CHEM-151 and CHEM-201 Analysis, 2023-2025 Numbered Report 343

College of the Canyons

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Institutional Research, Planning, and Institutional Effectiveness

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Background

At the request of the Chemistry department, the Institutional Research, Planning, and Institutional Effectiveness Office conducted a course length analysis of chemistry courses in 2023-24 and 2024-25. Specifically, the *analysis focused on students' success in 8-week vs. 16-week CHEM-151 (Preparatory General Chemistry) courses in fall and their subsequent enrollment and success in CHEM-201 (General Chemistry I) in spring.* In addition, the fall CHEM-201 to spring CHEM-202 (General Chemistry II) sequence was analyzed for the 2024-25 year. This was the first year that CHEM-201 had 8-week offerings.

Methodology

Data sources included the USX and UST MIS referential files. USX files provided enrollment and grade data, and UST files provided student demographic information.

Enrollment numbers exclude students who dropped before census.

Course success is defined as the percent of students successful in courses out of the total enrolled in courses (numerator = number of students [duplicated] with A, B, C, CR, or P; denominator = number of students [duplicated] with A, B, C, D, F, FW, CR, NC, P, NP, W, or EW).

Results

Enrollment and Success

The table below (Table 1) provides overall success rates and enrollment for CHEM-151, CHEM-201, and CHEM-202 (honors classes are included in CHEM-151 and CHEM-201). The average course success rates across these four semesters are 73%, 77%, and 76%, respectively. Apart from spring 2025 CHEM-151/151H success rates, all three courses have higher success rates in spring semesters compared to fall.

Table 1. Success rates for CHEM-151/151H, CHEM-201/201H, and CHEM-202, fall and spring semesters 2023-24 and 2024-25

Course	Fall 2023	Spring 2024	Fall 2024	Spring 2025
CHEM-151/151H	77% (330/430)	78% (294/379)	70% (356/505)	69% (360/520)
CHEM-201/201H	75% (128/170)	84% (175/209)	74% (189/257)	76% (194/254)
CHEM-202	73% (64/88)	79% (84/107)	73% (75/103)	79% (103/131)

Fall enrollments and success rates by course length for CHEM-151/151H are provided in Table 2. There were 75 more students enrolled in fall 2024 (N=505) than in fall 2023 (N=430), an increase of 17%, but the success rate fell from 77% to 70%. The proportion of students who enrolled in 8-week CHEM-151 increased significantly from the previous year, from less than one-half of full-term enrollments in fall 2023 (129 vs. 301 in 16-week sections) to nearly the same amount in fall 2024 (248 vs. 257).

In both semesters, students in full-term courses out-performed those in 8-week courses[1]. However, in fall 2024 success rates in 8-week courses varied significantly. Those in the first 8-week courses had a better success rate than those in 16-week courses (79% vs. 73%) while the success rate for the second 8-week courses was 57%.

Table 2. CHEM-151/151H enrollment and success by course length Fall 2023 and Fall 2024

Course Length	**CHEM-151/151H Fall 2023** Success / Enrollment	**CHEM-151/151H Fall 2024** Success / Enrollments
8-wk	72% / N=129	69% / N=248
1st 8-wks	*72% / N=67*	*79% / N=126*
2nd 8-wks	*73% / N=62*	*57% / N=122*
16-wk	79% / N=301	73% / N=257
Total	77% / N=430	70% / N=505

Note: CHEM-151H was only available as a 16-week offering.

A similar difference in first and second 8-week courses appears for CHEM-201 in fall 2024 but with a higher success rate in the second half of the semester (79% vs. 73%). Additionally, success in full-term courses (71%) was lower than all short-term courses (76% for all 8-week courses).

Table 3. CHEM-201/201H enrollment and success by course length Fall 2024

CHEM-201/201H Course Length	**CHEM-201/201H Fall 2024** Success / Enrollment
8-wk	76% / N=125
1st 8-wks	*73% / N=63*
2nd 8-wks	*79% / N=62*
16-wk	71% / N=132
Total	74% / N=257

Note: CHEM-201H was only available as a 16-week offering.

Students who enrolled in CHEM-201/201H in spring 2024 after taking CHEM-151/151H the preceding fall semester were slightly more successful in general chemistry 1 (86%) than the overall success rate (84%). Those who took CHEM-151 in an 8-week format had an even higher success rate of 92% in CHEM-201, but there were relatively few students from this sequence (N=25) compared to students who came from CHEM-151/151H 16-week classes (N=71) (see Table 4).

[1] Full-term courses included honors sections, but honors enrollment makes up a small percentage of full-term CHEM-151 enrollment (19 out of 301 in fall 2023 [6%] and 11 out of 257 in fall 2024 [4%]).

Table 4. Success in CHEM-201/201H in Spring 2024 for students who enrolled in CHEM-151/151H in Fall 2023

		Spring 2024 - CHEM-201/201H 16-wk
Fall 2023 - CHEM-151/151H Success Rate / Enrollment	**8-wk** 72% / N=129	92% / N=25
	1st 8-wk *72% / N=67*	*100% / N=11*
	2nd 8-wk *73% / N=62*	*86% / N=14*
	16-wk 79% / N=301	86% / N=71
	Total CHEM-151/151H 77% / N=430	86% / N=96

The percentage of students who continued to CHEM-201/201H in spring after successfully completing CHEM-151/151H in fall ranged from 19% to 30%, as detailed in Table 5.

Table 5. Percentage of students enrolling in CHEM-201/201H in the spring semester after passing CHEM-151/151H in the fall semester

CHEM-151/151H Course Length	2023-24	2024-25
8-weeks	27% (25 of 93)	19% (32 of 170)
16-weeks	30% (71 of 237)	24% (44 of 186)

In the 2024-25 academic year, both CHEM-151 and CHEM-201 were offered in short- and full-term classes. Table 6 details the success of students in each course length as well as each sequence for the 76 students who enrolled in spring CHEM-201/201H after passing CHEM-151/151H in the fall. An equal number of these students enrolled in 8-week and 16-week CHEM-201/201H courses (N=38), but those in the short-term classes had a higher success rate of 84% compared to 71% in the full-term classes. For these students, and for all students enrolled in CHEM-201/201H, those in the short-term offerings performed better than the full-term offerings. Once again, there was a substantial difference between first and second 8-week classes where a higher percentage of students succeeded in the first half of the semester compared to those in the second half.

Table 6. Success in CHEM-201/201H in Spring 2025 for students who enrolled in CHEM-151/151H in Fall 2024

		Spring 2025: CHEM-201/201H Success(%)/Enrollment (N)				
		8-wk 78% / N=146	***1st 8-wk*** *89% / N=76*	***2nd 8-wk*** *66% / N=70*	**16-wk** 74% / N=108	**Total CHEM-201/201H** 76% / N=254
Fall 2024 :CHEM-151 Success(%)/Enrollment	**8-wk** 69% / N=248	92% / N=24	*92% / N=13*	*91% / N=11*	N=8	88% / N=32
	1st 8-wk *79% / N=126*	*93% / N=14*	*90% / N=10*	*N=4*	*N=7*	*86% / N=21*
	2nd 8-wk *57% / N=122*	*90% / N=10*	*N=3*	*N=7*	*N=1*	*91% / N=11*
	16-wk 73% / N=257	71% / N=14	*N=8*	*N=6*	70% / N=30	70% / N=44
	Total CHEM-151/151H 70% / N=505	84% / N=38	*90% / N=21*	*76% / N=17*	71% / N=38	78% / N=76

Note: Success data suppressed when enrollment N <10

The sequence from fall 2024 CHEM-201/201H to spring 2025 CHEM-202 is examined in Table 7 below. Students in this sequence (N=85) had higher success rates in CHEM-202 (84%) than the overall rate (79%). Disaggregating by CHEM-201 course length reveals similar CHEM-202 success rates for students who came from 8-week CHEM-201 (83%) and students who came from 16-week CHEM-201/201H (85%). There is significant variation in CHEM-202 success between first 8-week CHEM-201 students (92%) and second 8-week CHEM-201 students (73%).

Table 7. Fall 2024 enrollments and success in CHEM-201/201 and subsequent spring 2025 enrollments and success in CHEM-202, by course length

		Spring 2025 - CHEM-202 **16-wk** 79% / N=131
Fall 2024 CHEM-201	**8-wk** 76% / N=125	83% / N=46
	1st 8-wk *73% / N=63*	*92% / N=24*
	2nd 8-wk *79% / N=62*	*73% / N=22*
	16-wk 71% / N=132	85% / N=39
	Total CHEM-201 74% / N=257	84% / N=85

Grade Distributions

The tables below detail the grade distribution of students who took 8-week CHEM-151 courses (Table 8) and students who took 16-week CHEM-151 courses (Table 9). Each table also provides the grade distribution for those students who enrolled in CHEM-201/201H the following semester. CHEM-151/151H 16-week courses had higher percentages of students earning As in both years (33% and 34% compared to 26% and 27% in 8-week courses) as well as lower percentages of withdrawals (W) (9% and 7% compared to 12% and 14% in 8-week courses). Those students from CHEM-151/151H 16-week courses in fall 2024 had a higher percentage of students who failed CHEM-201/201H compared to students from CHEM-151 8-week courses (23% earning Ds or Fs compared to 9%, respectively).

Table 8. Grade distribution in CHEM-151 8-week for fall, and grade distribution in CHEM-201 for students who enrolled in CHEM-201 in subsequent spring 2023-24 and 2024-25

Grade	2023-24				2024-25			
	Fall 2023 CHEM-151 8-weeks (N=129)		Spring 2024 CHEM-201 after CHEM-151 8-weeks (N=25)		Fall 2024 CHEM-151 8-weeks (N=248)		Spring 2025 CHEM-201 after CHEM-151 8-weeks (N=32)	
	n	%	n	%	n	%	n	%
A	34	26%	8	32%	67	27%	11	34%
B	41	32%	10	40%	45	18%	7	22%
C	18	14%	5	20%	57	23%	10	31%
P	-	-	-	-	1	<1%	-	-
D	9	7%	2	8%	15	6%	1	3%
F	11	9%	-	-	25	10%	2	6%
NP	1	<1%	-	-	1	<1%	-	-
W	15	12%	-	-	35	14%	1	3%
FW	-	-	-	-	2	<1%	-	-

Table 9. Grade distribution in CHEM-151/151H 16-week for fall, and grade distribution in CHEM-201/201H for students who enrolled in CHEM-201 in subsequent spring 2023-24 and 2024-25

Grade	2023-24				2024-25			
	Fall 2023 CHEM-151/151H 16-weeks (N=301)		Spring 2024 CHEM-201/201H after CHEM-151/151H 16-weeks (N=71)		Fall 2024 CHEM-151/151H 16-weeks (N=257)		Spring 2025 CHEM-201/201H after CHEM-151/151H 16-weeks (N=44)	
	n	%	n	%	n	%	n	%
A	100	33%	27	38%	87	34%	15	34%
B	72	24%	20	28%	55	21%	8	18%
C	64	21%	14	20%	45	18%	8	18%
P	1	<1%	-	-	-	-	-	-
D	16	5%	1	1%	27	11%	8	18%
F	20	7%	5	7%	25	10%	2	5%
W	26	9%	3	4%	18	7%	2	5%
EW	1	<1%	1	1%	-	-	-	-
FW	1	<1%	-	-	-	-	1	2%

Honors Enrollment

The list below provides a brief description of the enrollment patterns of students taking honors courses in CHEM-151 and/or CHEM-201.

2023-24

- 19 students enrolled in CHEM-151H in fall 2023
    - 10 of 19 enrolled in CHEM-201H (53%) in spring 2024
    - 2 of 19 enrolled in CHEM-201 (11%) in spring 2024
- 411 students enrolled in CHEM-151 in fall 2023
    - 4 of 411 enrolled in CHEM-201H (<1%) in spring 2024

2024-25

- 11 students enrolled in CHEM-151H in fall 2024
    - 2 of 11 enrolled in CHEM-201H (18%) in spring 2025
    - 1 of 11 enrolled in CHEM-201 (9%) in spring 2025
- 14 students enrolled in CHEM-201H in fall 2024
    - 8 of 14 enrolled in CHEM-202 (57%) in spring 2025

Demographics

Student demographics were compared in Table 10 for students enrolled in 8-week vs. 16-week CHEM-151/151H courses in fall 2023 and 2024. The demographic categories include age group, gender, race/ethnicity, and first-generation status. These comparisons revealed that most demographic characteristic distributions were very similar across differing course lengths.

In fall 2023, the only categories that demonstrated slightly greater percentage differences (4% or more) were 19 or less and 20-24 age groups, Asian and Hispanic/Latino racial/ethnic groups, and first-generation students. The percentage of students aged 19 or less was higher in 16-week courses (66%) than in 8-week courses (60%) while the opposite was true for students aged 20-24 (21% vs. 31%, respectively).

In fall 2024, the categories that demonstrated a 4% or more percentage difference between 8-week and 16-week courses included 19 or less, 20-24, and 25-29 age groups, as well as Asian and White racial/ethnic groups. The biggest change from the previous year was the percentage of students aged 19 or less in 8-week courses which fell from 60% in 2023 to 41% in 2024. The percentage of students aged 25-29 rose from 6% to 13%, and 30-34 year olds rose from 2% to 6%. The age group distribution of students in fall 2024 16-week courses remained similar to that of the previous year.

Table 10. Demographics of students enrolled in CHEM-151 8-week sections vs. 16-week sections in Fall 2023 and Fall 2024

Category	**CHEM-151 8-wks** Frequency / % of total enrolled		**1st 8-wks** Frequency / % of total enrolled		**2nd 8-wks** Frequency / % of total enrolled		**CHEM-151/151H 16-wks** Frequency / % of total enrolled	
Semester	**Fall 2023**	**Fall 2024**	**Fall 2023**	**Fall 2024**	**Fall 2023**	**Fall 2024**	**Fall 2023**	**Fall 2024**
Total number of students enrolled	129	248	67	126	62	122	301	257
Age Group								
19 or less	77 (60%)	102 (41%)	36 (54%)	55 (44%)	41 (66%)	47 (39%)	198 (66%)	164 (64%)
20-24	40 (31%)	82 (33%)	25 (37%)	37 (29%)	15 (24%)	45 (37%)	63 (21%)	57 (22%)
25-29	8 (6%)	31 (13%)	5 (7%)	17 (13%)	3 (5%)	14 (11%)	23 (8%)	15 (6%)
30-34	3 (2%)	16 (6%)	1 (1%)	6 (5%)	2 (3%)	10 (8%)	9 (3%)	10 (4%)
35-39	-	8 (3%)	-	7 (6%)	-	1 (<1%)	3 (<1%)	7 (3%)
40-49	-	6 (2%)	-	2 (2%)	-	4 (3%)	5 (2%)	2 (<1%)
50+	1 (<1%)	3 (1%)	-	2 (2%)	1 (2%)	1 (<1%)	-	2 (<1%)
Gender								
Female	77 (60%)	152 (61%)	40 (60%)	76 (60%)	37 (60%)	76 (62%)	181 (60%)	151 (59%)
Male	52 (40%)	92 (37%)	27 (40%)	47 (37%)	25 (40%)	45 (37%)	118 (39%)	102 (40%)
Unknown	-	4 (2%)	-	3 (2%)	-	1 (<1%)	2 (<1%)	4 (2%)
Race/Ethnicity								
Asian	17 (13%)	41 (17%)	10 (15%)	24 (19%)	7 (11%)	17 (14%)	50 (17%)	33 (13%)
Black or African American	6 (5%)	10 (4%)	3 (4%)	5 (4%)	3 (5%)	5 (4%)	6 (2%)	3 (1%)
Hispanic/Latino	71 (55%)	148 (60%)	40 (60%)	77 (61%)	31 (50%)	71 (58%)	151 (50%)	146 (57%)
Native Hawaiian or Other Pacific Islander	-	1 (<1%)	-	1 (<1%)	-	-	-	1 (<1%)
Two or More Races	5 (4%)	8 (3%)	1 (1%)	2 (2%)	4 (6%)	6 (5%)	16 (5%)	15 (6%)
White	30 (23%)	38 (15%)	13 (19%)	16 (13%)	17 (27%)	22 (18%)	76 (25%)	55 (21%)
Unknown	-	2 (<1%)	-	1 (<1%)	-	1 (<1%)	2 (<1%)	4 (2%)
First Generation								
First Generation	35 (27%)	72 (29%)	18 (27%)	34 (27%)	17 (27%)	38 (31%)	56 (19%)	70 (27%)
Not First Generation	79 (61%)	135 (54%)	43 (64%)	71 (56%)	36 (58%)	64 (52%)	216 (72%)	140 (54%)
Unknown	15 (12%)	41 (17%)	6 (9%)	21 (17%)	9 (15%)	20 (16%)	29 (10%)	47 (18%)

Summary Findings

- CHEM-151/151H success rates in fall 2023 and fall 2024 were higher in 16-week offerings (79% and 73%, respectively) than in 8-week offerings (72% and 69%, respectively). However, in fall 2024, rates varied considerably (79% in 1st 8-weeks and 57% in 2nd 8-weeks).
- Enrollment in CHEM-151 8-week classes nearly doubled from fall 2023 to fall 2024, from 129 to 248, with increased offerings of short-term sections while enrollment in 16-week classes fell from 301 to 257.
- The proportion of fall semester CHEM-151/151H passing students who enrolled in spring CHEM-201/201H fell for both short- and full-term courses.
- In both 2023-24 and 2024-25, students who took 8-week CHEM-151 courses had a higher success rate in CHEM-201 than students who took 16-week CHEM-151/151H courses (92% vs. 86% and 88% vs. 70%, respectively).
- In fall 2024, students in 8-week CHEM-201 classes were slightly more successful (76%) than students in 16-week classes (71%). For those who enrolled in CHEM-202 in spring 2025, their success rates were similar except when disaggregating by students who came from CHEM-201 first versus second 8-week offerings (92% success in CHEM-202 compared to 73%).
- Student demographics were largely the same in 8-week vs. 16-week CHEM-151/151H courses. The only populations to demonstrate a +/-4% or more difference in fall 2023 were 19 or less and 20-24 age groups, Asian and Hispanic/Latino racial/ethnic groups, and first-generation students. In fall 2024, these groups included 19 or less, 20-24, and 25-29 age groups, as well as Asian and White racial/ethnic groups.

Implications

"The Institutional Research, Planning and Institutional Effectiveness office collects information on how data and research conducted assist the campus community in making evidence-based decisions. In light of this, we ask that requestors, and/ or members of any department/area that utilize the data, provide action implications for each report."

Using the Action Implication Form, please report actions and/or decisions that emerge from the data and findings presented in this report.

Once completed, action implications will be made available upon request.

Recommendations

Upon review of the results of Chemistry course length analysis, the following recommendations should be taken into consideration:

- Explore additional data (e.g. focus groups) to further examine the finding that students who took 8-week CHEM-151 courses had a higher success rate in CHEM-201 than students who took 16-week CHEM-151/151H courses.
- Since 8-week offerings in these CHEM courses started one year ago in 2023-24, monitor success rates in short-term course offerings regularly.

For questions, or more detailed information on this research brief, contact Meredith Hamilton at meredith.hamilton@canyons.edu or Preeta Saxena, Ph.D., Dean of Institutional Research, Planning and Institutional Effectiveness at preeta.saxena@canyons.edu.