

Chemistry
FELO Data for 1e: FA2023-SP2024

Learning Outcome: FELO 1e. Quantitative Reasoning

Students will be able to solve problems that are quantitative in nature.

Outcome Measure: Problems on the final exam that are quantitative in nature.

CHE101 / 1001 Chemistry and Society

CHE103 / 1003 Introduction to General, Organic, and Biological Chemistry

CHE152 / 1052 General Chemistry I

PSC110 Physical Science (chemistry portion)

PSC111 / 1014 Physical Science for Teachers (chemistry portion)

Criteria for Success: At least 70% of students will score 3 or higher.

Longitudinal Data:**CHE1001 (formerly CHE101)**

		Assessment Data for FELO 1e. Quantitative Reasoning									
		Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024
Number of students		n=19	n=20	n=18	n=19	N/A	n=20	n=20	n=20	n=20	n=20
Percentage		47.4%	75.0%	77.8%	55.0%	Course not offered	70%	20%	55%	75%	40%

CHE1003 (formerly CHE103)

		Assessment Data for FELO 1e. Quantitative Reasoning									
		Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024
Number of students		n=29	n=20	n=33	n=19	n= 34	N/A	n=31	n=20	n=42	

Chemistry: FELO Data, 2023-24

Percentage	89.7%	90.0	90.9%	47.4%	82.9%	Not assessed	65%	73.7%	85.7%	Not offered in the Spring anymore
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*No assessment data for FELO 1e in CHE103 Spring 2019 and Spring 2022, due to changes made to final exam.

CHE1052 (formerly CHE152)

		Assessment Data for FELO 1e. Quantitative Reasoning								
		Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Spring 2024
Number of students		n=55	n=51	n=52	n=48	n=47	n= 45	n=47	n=42	n=17
Percentage		89.1%	84.3%	96.2%	83.0%	76.6%	32.6%	77.8%	71.4%	47.1%

PSC1014 (formerly PSC110 & PSC111)

		Assessment Data for FELO 1e. Quantitative Reasoning								
		Fall 2016	Spring 2017	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023
Number of students		n=20	n=18	n=20	n=19	n=20	n=20	n=19	n=20	N= 18
Percentage		95.0%	94.4%	90.0%	63.2%	85.0%	70.0%	78.9%	78.9%	85.7%

Conclusions Drawn from Data:

FELO 1e (quantitative reasoning) is assessed in 4 of our 5 chemistry FE courses. For General Chemistry I (CHE 1052) our criteria for success was met in the Fall but not in the Spring. We started offering this course in the Spring to support transfer students and students who failed in the Fall and needed to retake it. Despite the best efforts of the instructor and the exemplary support that was provided, students struggled in this course. We will continue to monitor and assess this course to see if this single data point is starting a trend or is simply a one off.

The criteria for success met for CHE 1003 and PSC 1014 and for Chemistry and Society (CHE 1001) in the Fall semester. However, it was not met for CHE 1001 in the Spring semester. Similar to what we observed last year, the criterion for success is met when a full-time tenure track faculty teaches the course (which was the case in the Spring 2023 and Fall 2024) and is not met when an adjunct teaches the same course (see Fall 2022 and Spring 2024). While we wish we could have more FT faculty teach this course, we cannot realistically make it happen every semester due to our other courses.

Changes to be Made Based on Data: We will continue to monitor CHE 1052 (Spring) and with the GE reform, it is likely that CHE 1001 will not be offered anymore since it does not have a lab.

Rubric Used: The following scale was used.

	4	3	2	1
% of points earned on quantitative problems	80 – 100%	60 – 79%	40 – 59%	39% or lower