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EMT HLHSCI-151 Survey Of Course History & Success Rates RB#239

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COLLEGE OF THE CANYONS

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Introduction & Background

At the request of the chair of the Emergency Medical Technician (EMT) department the Office of Institutional Research, Planning and Institutional Effectiveness examined course success data for Emergency Medical Technician Health Science 151 (HLHSCI-151) disaggregated by the responses to a course history survey administered in the academic terms fall 2022 and spring 2023. The findings are a follow up to RB #234 which assessed the impact of "Emergency Medical Responder" (HLHSCI-046) which is currently a recommended course. The data from this analysis will provide further information as to the value of HLHSCI-046 as well as the science course history (completed in high school and at College of the Canyons) prior to students taking HLHSCI-151 that leads to more success. Results will assist in informing the curriculum that will be built into HLHSCI-151. This brief is intended to address the following research questions:

- What is the relationship of **previous course work completed** in Science, Math, and/or English (during High School and College) and success in HLHSCI-151?
- What is the relationship of **time since previous courses completed** in Science, Math, and/or English (during High School and College) and success in HLHSCI-151?

Method

The survey of course work history was posted to the CANVAS shells of students actively enrolled in HLHSCI-151 during weeks 2 and 3 of the fall 2022 and spring 2023 academic terms. A total of 104 students completed the survey out of the 175 first-time enrolled in HLHSCI-151 during the fall 2022 and spring 2023 academic terms, yielding a 59% response rate.

Course Work Completed History: The survey asked students to specify the courses they successfully completed with a grade of C or better in Science, English, and Math. Students were asked to report on this course work history completed in High School as well as at COC. Students could have selected multiple courses in each discipline, for math, only their highest reported course was included. For HLHSCI-046, course taking history was tracked for survey respondents up to 3 years prior to their enrollment in HLHSCI-151 using the same methodology as report #234. Students who successfully completed HLHSCI-046 were compared to students without an enrollment in it prior to taking HLHSCI-151.

Time Since Previous Courses Completed: Additionally, students were asked to report the time that had passed since they took the reported High School or COC Science, English, and Math courses.

To assess student success in HLHSCI-151 and in order to replicate and expand on the efficacy of HLHSCI-046 as a recommended pre-requisite course, student IDs were collected and the student grade reports from Informer for both courses were used.

Course Success: defined as the percent of students successful in HLHSCI-151 out of total enrolled in course. Numerator = number of students with A, B, C, CR/P; Denominator = number of students with A, B, C, D, DR, F, FW, W, I, CR/P, NC/NP. Students who dropped prior to first census were not counted. The EMT department is specifically interested in success as a grade of B or better in HLHSCI-151. The traditional success rates and "B or Better" are specified throughout the report.

The survey results presented exclude survey non-respondents.

Results

Profile of Survey Respondents vs. Total Enrolled

White students are slightly over-represented among survey respondents than the overall student population enrolled in HLHSCI-151 across fall 2022 and spring 2023. Female students and students aged 19 or less and 35-39 had a higher representation among survey respondents (*See Table 1*).

*Table 1. Demographics comparing all students enrolled in HLHSCI-151 to survey respondents (Fall 2022/Spring 2023).*

Number of Students (N)	Total Enrolled 175	Survey Respondents 104		Number of Students (N)	Total Enrolled 175	Survey Respondents 104
Ethnicity				**Age**		
African-American/Black	3%	4%		19 yrs. Or less	17%	20%
Hispanic/Latinx	37%	37%		20-24 yrs.	58%	56%
White	30%	32%		25-29 yrs.	14%	14%
Asian/Filipino/a/x	5%	5%		30-34 yrs.	6%	4%
Hawaiian/Pacific Islander	1%	0%		35-39 yrs.	4%	6%
Two or More Races	23%	23%		40+	1%	0%
Unknown	1%	0%				
Gender						
Male	76%	74%				
Female	23%	25%				
Unknown	1%	1%				

Profile of Survey Respondents and Non-Respondents Success Rates

The general pattern of success in HLHSCI-151 is such that students who completed the survey (survey respondents) had higher success rates than those who did not complete the survey (non-respondents). Students who completed the survey had higher course success rates in HLHSCI-151 on average than non-respondents (69% vs 47%) (*See Figure 1*).

Figure 1. Success Rates of HLHSCI-151 by Survey Respondents vs. Non-Respondents
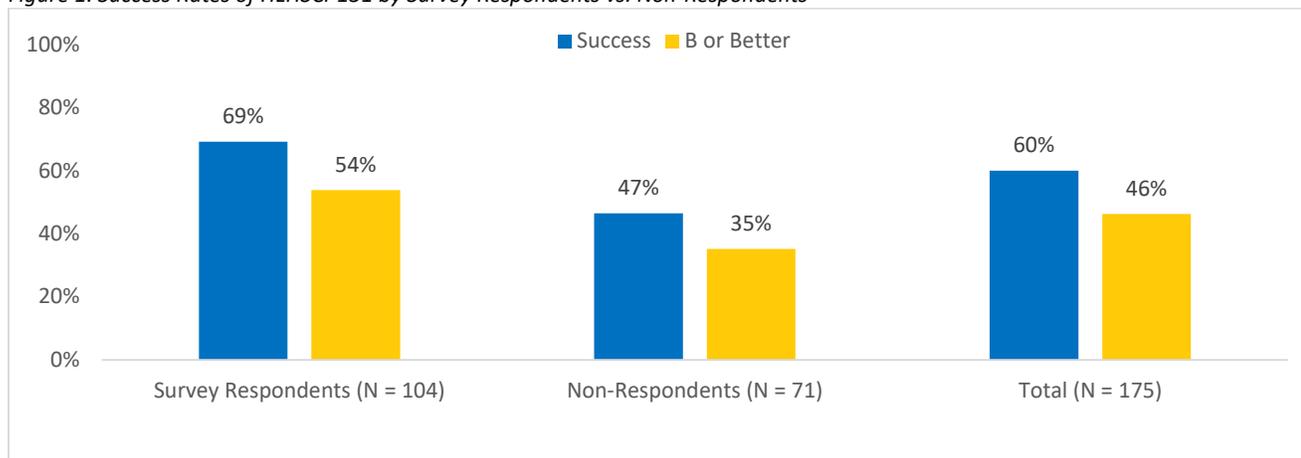
Prior Science Course Work History and Success in HLHSCI-151

Results for completion of prior Science course work illustrate that the rate of success (B or Better) in HLHSCI-151 was highest for those students who indicated "Other" type of science course completed at COC (86%), followed by Chemistry courses at COC (73%), followed by Anatomy and Physiology in High School (67%). (*See Table 2*).

Table 2. Success Rates in HLHSCI-151 by Previous Science Course Work History

Type of Science Courses Completed	Success (%)	B or Better (%)	Total (*N*)
COC			
Any Science Course at COC	74%	55%	31^
Chemistry	73%	73%	11
Biology	73%	54%	26
Other*	86%	86%	14
High School			
Any Science Course in High School	69%	54%	104^
Chemistry	71%	59%	70
Biology	67%	50%	91
Anatomy & Physiology	77%	67%	30
Physics	77%	63%	30
AP or IB Sciences	77%	62%	13

*Half of the students who designated "Other" for COC/High School science course work specified some type of EMR/EMT course work history. Those students who specified EMR/EMT prior coursework (at the High School level) had a 75% success rate.

^This is the total unduplicated count of students who selected one or more Science Courses. Thus, Ns from rows below will not equal as they can be duplicated across courses.

Prior Course Completion of HLHSCI-046 and Success in HLHSCI-151

Prior completion of HLHSCI-046, the recommended course for HLHSCI-151 was also assessed for survey respondents with respect to success in HLHSCI-151. The highest rate of success was among the group of students who completed 046 AND some other Science course at COC (79%). The highest rate of a grade of B or Better, showed a tie for any completion of 046, 046 and a HS Science course completed, and 046 only (60% respectively) (*See Table 3*).

Table 3. Success rates in HLHSCI-151 by Prior Completion of HLHSCI-046 among Survey Respondents

Completion of HLHSCI-046	Success (%)	B or Better (%)	Total (*N*)
Completed HLHSCI-046	76%	60%	62^
HLHSCI-046 and any High School Science Course	76%	60%	62
HLHSCI-046 and any COC Science Course	79%	58%	19
HLHSCI-046 ONLY	73%	60%	43
No History of HLHSCI-046 Enrollment	59%	45%	42
No HLHSCI- 046 and No COC Science Course	57%	43%	30

*Other groups such as No HLHSCI-046 and HS Science/No HS Science were excluded due to low number of students falling into these categories. A total of 5 students attempted HLHSCI-046 but did not successfully complete it prior to HLHSCI-151.

Prior English Course Work History and Success in HLHSCI-151

Results illustrate that students who indicated having completed English-101 or higher at COC had greater success rates (success: 80%, B or Better: 62%) than having completed lower level English courses (though Ns were small to definitively conclude). Table below includes details.

Table 4. Success rates in HLHSCI-151 by English Course Work History

Type of English Courses Completed	Success (%)	B or Better (%)	Total (N)
COC			
ENGL-101 or Higher at COC	80%	62%	71
High School			
Any English in Highschool	70%	54%	96
AP English	85%	69%	13
English-12	68%	52%	79
Expository Reading & Writing	74%	47%	19

Highest Level of Prior Math Course Work History and Success in HLHSCI-151

Analysis of prior math course work shows a clear hierarchy of STEM math course work completed relating to higher rates of success in HLHSCI-151. For High School math, those students who reported the highest math course completed as Pre-Calc/Calculus had the highest success in HLHSCI-151. (*Table below*).

*Table 5. Success Rates in HLHSCI-151 by Highest Prior Math Course Completed*

Highest Level of Math Completed	Success (%)	B or Better (%)	Total (N)*
COC			
Non-STEM Math: 100/ 111/ 130/140	74%	54%	35
STEM Math: Trigonometry (102) College Algebra (103)	100%	91%	11
High School			
Algebra	55%	36%	11
Algebra 2	66%	41%	29
Trigonometry/ AP Stats	50%	43%	14
Pre-Calc/Calculus	86%	77%	35

*Unduplicated counts by highest level Math course

Recency of Prior Coursework Completed and Success (B or Better) in HLHSCI-151

Across all three disciplines (Science, English, and Math), less time since courses were completed in each discipline was related to higher success rates (B or Better) in HLHSCI-151, except for HS English and COC Math.

Figure 2. Success Rates (B or Better) in HLHSCI-151 by Time Since Prior Coursework Completed in Science, English, or Math
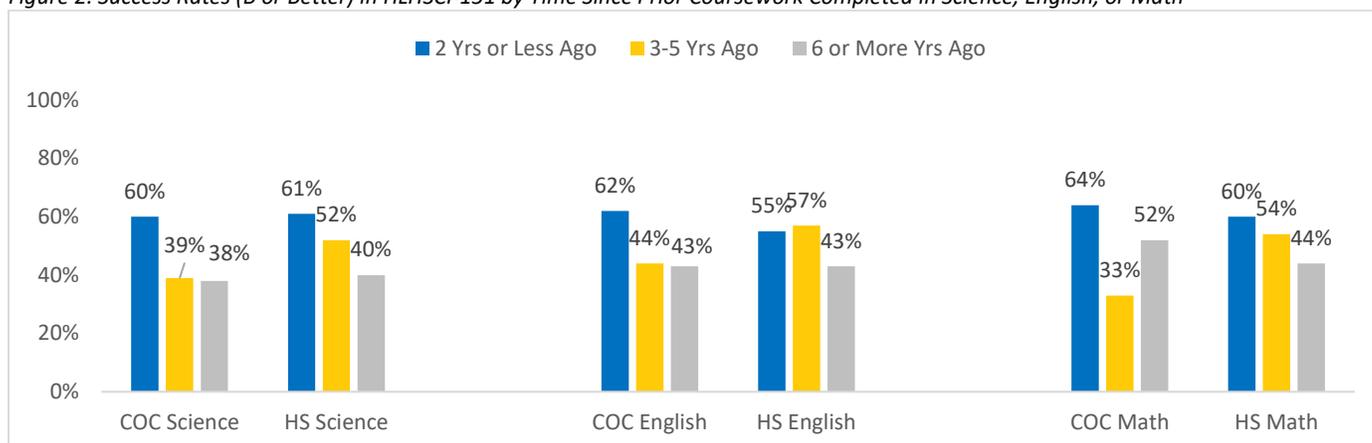
Summary Findings

- HLHSCI-151 success rates were generally higher:
  - when the less time passed since a course completed in any Science, English, or Math prior to HLHSCI-151.
  - for students who completed a chemistry course at COC or where they specified EMT/R related course.
  - for students having completed HLHSCI- 046 prior to HLHSCI-151 in combination with *any* other COC science course.
- Completing HLHSCI- 046 in combination with a COC science course prior to HLHSCI-151 did yield higher success rates (79%) than not completing HLHSCI-046 at all (57%).
- Higher success rates were shown for students who completed STEM Math as part of their prior COC coursework (100%) or even Engl-101 (80%).
- For English, the highest overall rates of success in HLHSCI-151 were for students who had completed High School AP English (85%), followed by English-101 at COC (80%). For Math, the highest overall rates of success in HLHSCI-151 were for students who had completed a transfer-level STEM Math at COC (100% out of 11 students), followed by High School Pre-calculus (85%).

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 following **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 the request the following recommendations can be explored:
- Explore a noncredit support corequisite or course/modules with course specific content that supports success, particularly for underperforming groups. An asynchronous online version might be considered.

- Consider conducting an item analysis on the results of early assessments from both HLHSCI-151 and HLHSCI-046 to establish what material most students require further support with.

For questions, or more detailed information on this research brief, contact Vida M. Manzo, Ph.D., Senior Research Analyst at vida.manzo@canyons.edu or Preeta Saxena, Ph.D., Director Institutional Research, Planning and Institutional Effectiveness at preeta.saxena@canyons.edu.