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Emergency Medical Technician Health Science HLHSCI-151 Success by Academic History RB#234

College of the Canyons

Santa Clarita Community College District
26455 Rockwell Canyon Road
Santa Clarita, CA 91355

Institutional Research, Planning, and
Institutional Effectiveness

Vida M. Manzo, Ph.D.

Preeti Saxena, Ph.D.

Daylene M. Meuschke, Ed.D.



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Introduction & Background

At the request of the chair of the Emergency Medical Technician 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 prior completion of the recommended coursework in Emergency Medical Responder Health Science 046 (HLHSCI-046). The purpose of this analysis is to examine whether adding a pre-requisite/revising existing recommended prep course (HLHSCI-046) for the HLHSCI-151 course is supported by the student success data.

Specifically, this brief is intended to address the following research questions:

- What is the trend in success rates in students' first-attempts in HLHSCI-151 across the last 4 years?
- What is the rate of success in students' first-attempts in HLHSCI-151, disaggregated by successful completion of HLHSCI-046, highest math completed in high school, high school GPA, and Math Placement?

Method

To conduct the analyses, Informer was used to access grade reports for HLHSCI-151 for the 4-year time period 2018/19 through 2021/22, (primary semesters only; fall and spring). The population assessed was limited to students' first-attempts at HLHSCI-151 during this time period.

These data were merged with Informer grades report for HLHSCI-151 and for HLHSCI-046. Data was also limited to students who completed the recommended pre-requisite (046) within a preceding 3-year time frame from enrolling in HLHSCI-151 using these reports start dates.

Success rates in HLHSCI-151 were disaggregated by enrollment and successful completion of HLHSCI-046, highest math course in high school, (highest math course), Math Placement (MP), and High School GPA (HSGPA).

Placement data were retrieved from Informer for the list of students comprising HLHSCI-151 enrollments (18/19-21/22). High School GPA was retrieved from records provided by the Assessment Center. For the purposes of this request, successful completion of HLHSCI-151 is defined as those students who enrolled and received a grade of B or better. Traditional success (grade C or better) is also reported for results.

Results

Profile of Students in HLHSCI-151

Overall, during a 4-year time period, the number of students who enrolled for the first-time in HLHSCI-151 was 546. The demographics for these enrollments during this 4-year period is such that males comprise 71% of the enrollments and females comprise 29%. The largest single age grouping among enrollments are those students aged 20-24 (59%) followed by the age group 19 or less (20%), then 25-29 (14%), and students aged 30 years and above made up 7%. The profile for race/ethnicity is; Hispanic/Latinx (36%), White (34%), Two or more races (18%), Asian/Filipino (6%), African American/Black (3%), Native American/Alaska Native (1%) and Hawaiian/Pacific Islander (1%). The overall number of enrollments per academic year has decreased by 26% from the 2018/19 to 2021/22 (*see Table 1*).

Table 1. Enrollments in HLHSCI-151 Across the Last Four Years

Academic Year	N	Term	N
2018/19	149	FALL 18	75
		SPRING 19	74
2019/20	157	FALL 19	74
		SPRING 20	83
2020/21	130	FALL 20	70
		SPRING 21	60
2021/22	110	FALL 21	50
		SPRING 22	60
Total	546		546

Success Rates for HLHSCI-151 across 4 Years

The Division of Health & Public Safety requested that success be defined as students receiving a grade of “B” or higher in HLHSCI-151, as this allows students to obtain eligibility for the state EMT exam. Where applicable, success was also measured “traditionally” with C or higher definition. Across all years the rate for success was higher when measured as “traditional” (grade C or higher) as compared to B or higher. The overall patterns for success in HLHSCI-151 whether measured traditionally or using B or better, where highest in 2018/19 dipped in 2019/20 and 2020/21 and are trending upwards most recently in 2021/22 (see Table 2).

Table 2. Success Rates of HLHSCI-151 by Academic Year

Academic Year	N	B or Higher Success %	Traditional Success %
2018/19	149	59%	69%
2019/20	157	48%*	56%
2020/21	130	40%*	45%
2021/22	110	55%	66%
Total	546	50%	59%

*Spring 2020 and Fall 2020 had the highest rates of EWs/Ws/FWs

Success Rates for HLHSCI-151 Disaggregated by Academic History

An assessment was made of success rates for HLHSCI-151 disaggregated by whether students enrolled in the recommended prep course (HLHSCI-046) or not. In cases where an enrollment in 046 was found for a student, the data was limited to students who had enrolled in (046) within 3 years prior to enrolling in HLHSCI-151. A small number of students were concurrently (in the same term) enrolled in (046 and 151) across the five years and since the sample size was below 10, rates are suppressed. Further, there was a fairly equal count of students who had not attempted the recommended 046 (298 students) as compared to those who had attempted it (245 students) across the four years (see Table 3). The pattern of results was such that students who had no attempt at 046 on record had slightly higher rates of success (52%) in HLHSCI-151 than those who had successfully attempted 046 (50%).

Table 3. HLHSCI-151 Success Rates Disaggregated by Recommended Prep Course (HLHSCI-046) Course History

Recommended Prep Course History	HLHSCI-151		
	N	B or Higher Success %	Traditional Success %
Total	546	50%	59%
Attempted & passed 046	235	50%	59%
Attempted & failed 046	10	20%	40%
046 concurrent with 151	<5	--	--
No prior 046 on record*	290	53%	60%
046 attempted greater than 3 years prior to 151	<5	--	--

*Students who attempted 046 after HLHSCI-151 are not included here and the N for this group is smaller than 5.

An assessment was made of success rates for HLHSCI-151 students disaggregated by the highest self-reported math completed in high school. The most popular highest successfully completed course was Algebra 2, followed by Pre-Calculus, then Trigonometry/AP Statistics among students who reported a math course. The overall success rates for HLHSCI-151 followed a fairly linear pattern such that the higher the reported math course completed in high school the higher the success rate in HLHSCI-151. For example, those whose highest completed course was Calculus, the success rate was 77% as compared to those whose highest course was Algebra 1, who had a success rate of 20% (see Table 4).

Table 4. HLHSCI-151 Success Rates Disaggregated by Highest High School Math Completed

Course Work History	HLHSCI-151		
	N	B or Higher Success (%)	Traditional Success %
Total	546	50%	59%
Calculus	13	77%	77%
Pre-Calc	45	56%	64%
Trig/AP Stats	40	55%	67%
Algebra2	53	43%	51%
Geometry	39	36%	41%
Algebra 1	10	20%	30%
Pre-Algebra	<5	---	---
Did not complete course with >C	<5	---	---
No Record of Prior Highest Math	339	52%	62%

An assessment was made of success rates for HLHSCI-151 disaggregated by self-reported High School GPA. Similar to the pattern for highest math course completed, the higher the self-reported GPA, the higher the rates of success for HLHSCI-151 (see Table 5).

Table 5. HLHSCI-151 Success Rates Disaggregated by High School GPA

HS GPA	HLHSCI-151		
	N	B or Higher Success %	Traditional Success %
Total	546	50%	59%
4.0 or higher	10	78%	89%
3.5-3.9	44	52%	64%
3.0-3.49	81	53%	63%
2.61-2.99	11	46%	55%
2.0-2.60	18	21%	26%
0-1.99	<5	--	--
Don't remember/know	20	25%	25%
Missing/no placement on record	361	52%	60%

An assessment was made of success rates for HLHSCI-151 disaggregated by Math placement level. The academic years included in this analysis span across pre and post implementation of AB705. As such, the sample of students within this analysis had two possible types of Math placements as the years progressed and changes to placement occurred. Thus, disaggregation below is further separated into “traditional placement” which was pre-AB705; this included the student completing a placement test and being placed into **below transfer** level or **transfer** level. The “AB705” placements were for students who went through placement after the implementation of AB705 where all students could enter transfer level. This sample has been split into two groups, those whose recommended ceiling of starting math course was 140 with support versus Level 2 which includes up to course 211. The general pattern was such that students who received traditional Transfer Level placement had the highest rate of success (67%), followed by the post AB705 Transfer Level 2 placements (59%) (see Table 6).

Table 6. HLHSCI-151 Success Rates Disaggregated by Math Placement Levels

Math Placement	HLHSCI-151		
	N	B or Better (%)	Success (%)
Total	546	50%	59%
AB705 Transfer Level 2- 102,103,104,111, 130,140, 211	39	59%	67%
AB705 Transfer Level 1- 100, 102/92, 103/93, 130, 140/90	102	38%	43%
Traditional Transfer Level w/ Placement Tests- 100, 104, 240, 211	21	67%	76%
Traditional Below Transfer Level w/ Placement Tests- 058/060/070/075/083	48	45%	58%
None Reported/Missing	331	53%	63%

Last, the EMT department chair requested success in HLHSCI-151 be disaggregated by age. One reason was the notion that there may be a pattern of lower success rates among younger students due to the more mature content of emergency and medical responsiveness. When disaggregated by age, the results were mixed. Those aged 24 and under had success rates that were slightly lower (48%) than the overall average (59%) while age groups 25-29 and 35 and older had rates of success higher than the overall average success rate. However, the age group with the overall lowest success rate was 30-34 (see Table 7).

Table 7. HLHSCI-151 Success Rates Disaggregated by Student Age

Age Groups	HLHSCI151		
	N	B or Better (%)	Traditional Success (%)
Total	546	50%	59%
19 or Less	109	49%	59%
20-24	321	48%	59%
25+	116	58%	60%
25-29	76	65%	66%
30-34	23	39%	39%
35+	17	53%	59%

Summary Findings

- Overall students who did not attempt the recommended HLHSCI-046 had slightly higher success rates in HLHSCI-151 than those who had attempted the recommended course.
- As with most college courses, the higher the reported high school GPA, math course completed in High school, and COC Math placement level, the higher the success rates in HLHSCI-151.
- The pattern wasn't as clear with age but results suggest that older age groups tend to have higher success rates than the average rate.

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.

Recommendations

Upon review of the results of the request the following recommendations can be explored:

- In order to have a larger sample size, consider collecting similar information from enrolled students via surveys,
 Examine survey results and merge with course grades and demographics to assess patterns.
- Explore options for non-credit support classes.

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.