The Achievement Gap in Key Chemistry Classes

Tyler Vance

INTRODUCTION

Although there have been efforts to close the achievement gap between Underrepresented minorities (URM) and those considered the majority (Non-URM), there has not been much follow up research to determine if they have been successful. In our research, Underrepresented minorities are the following groups: Black/African American, Two or more races, Hispanic/Latino, American Indian/Alaska Native and Native Hawaiian or Other Pacific Island. Non-URM would include Whites, Asians, and those listed as Unknown. The purpose of my senior project is to determine if the achievement gap has been shrinking in five key Chemistry classes. If not, I hope my project is able to bring to attention the need to change our approach to closing the achievement gap. Only through awareness of the problem can our university hope to change the trend seen between URM and Non-URM students.

OBJECTIVES

I want to determine if the achievement gap between URM and Non-URM students is closing. If I find that it has, I will look into possible ways Cleveland State University can keep that gap as insignificant as possible. If I find that the achievement gap remains large, I will look into ways that CSU could possibly tackle this issue.

METHODS

- Data was provided from CSU's research department.
- Data was filtered out to only analyze Fall 2010-Fall 2018 (Including Spring Semesters/Excluding Summer Semesters)
- Tables were created to summarize pass rates by category (Figure 1)
- After going through all of the data, graphs were created to better project my findings.

	Fall 10-Chem 161		
	0	1	2
Pass	23	12	1
Fail	19	27	2
Total	42	39	3
%	54.8%	30.8%	33.3%

	Fall 11-Chem 161		
	0	1	2
Pass	43	17	4
Fail	14	19	4
Total	57	36	8
%	75.4%	47.2%	50.0%

	Fall 12-Chem 161		
	0	1	2
Pass	72	34	18
Fail	20	25	5
Total	92	59	23
%	78.3%	57.6%	78.3%

	Fall 15-Chem 161		
	0	1	2
Pass	117	46	7
Fail	68	65	14
Total	185	111	21
%	63.2%	41.4%	33.3%

	Fall 16-Chem 161		
	0	1	2
Pass	123	70	14
Fail	26	34	2
Total	149	104	16
%	82.6%	67.3%	87.5%

	Fall 17-Chem 161		
	0	1	2
Pass	105	45	9
Fail	44	51	6
Total	149	96	15
%	70.5%	46.9%	60.0%

Figure 1. Example of Grade Breakdown, Chemistry 161 Fall Semesters

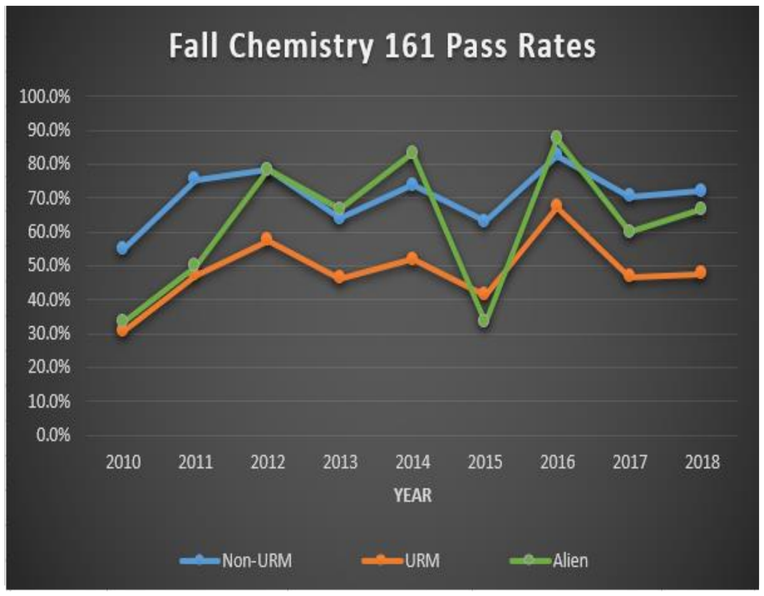

Figure 2. Grade Breakdown by Group, Fall Chemistry 161

RESULTS

- Mixed results.
- Achievement Gap between URM and Non-URM students seems consistent in Chemistry 161 and Chemistry 261.
- Some promising results in Chemistry 331 and Chemistry 332, where there are several years in which URM had similar pass rates when compared to Non-URM students.

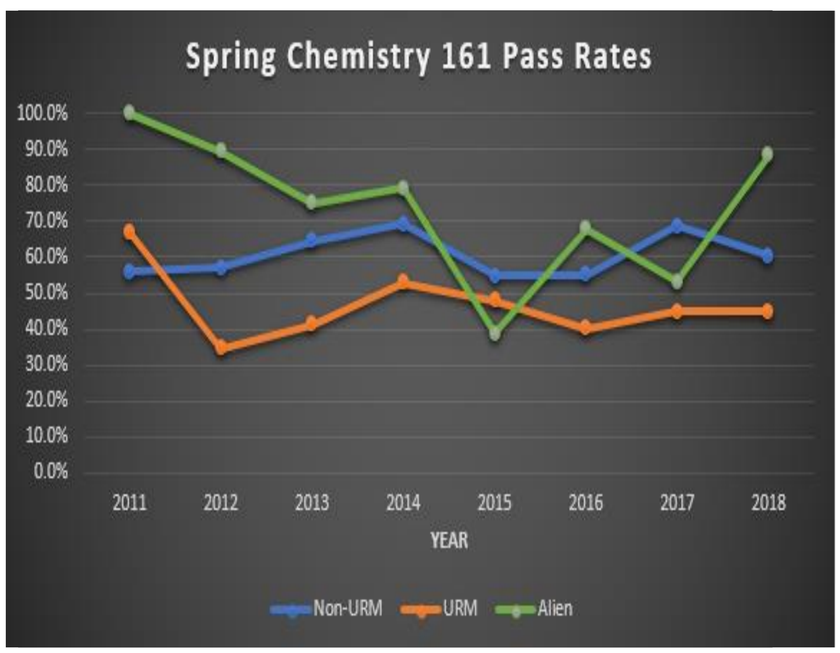

Figure 3. Grade Breakdown by Group, Spring Chemistry 161

CONCLUSIONS

While Cleveland State University is aware of the achievement gap between URM and Non-URM students, it does not seem their current plan to improve the pass rates has been successful. Although there are a few years when pass rates are similar, we are yet to see consistent improvement over a long period of time.

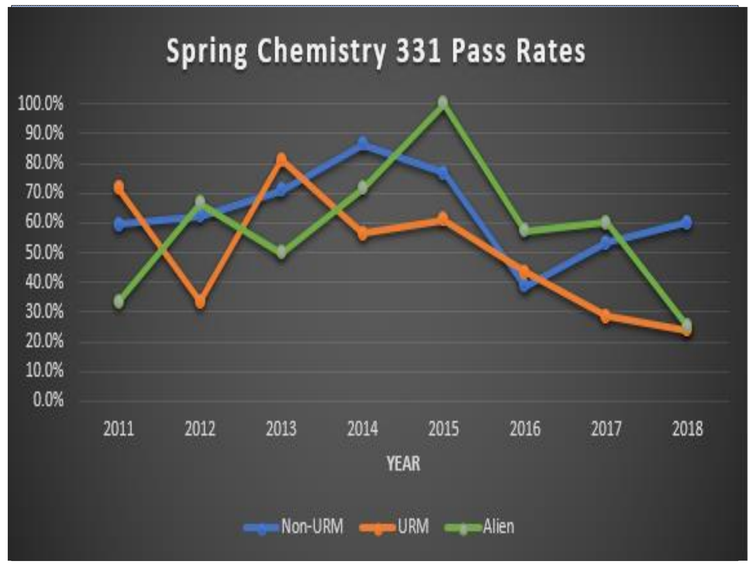

Figure 4. Grade Breakdown by Group, Spring Chemistry 331

FUTURE WORK

There are many approaches to bridging the achievement gap. One study (*Mitigating Barriers.., Banks and Dohy, 2019) points out that every program that has been successful focused on creating a feeling of belonging among Underrepresented minorities. While it might be difficult, we can look for ways to get all students involved.*

References

Banks, T., & Dohy, J. (2019). Mitigating Barriers to Persistence: A Review of Efforts to Improve Retention and Graduation Rates for Students of Color in Higher Education. *Higher Education Studies,9*(1), 118. doi:10.5539/hes.v9n1p118

Snyder, J. J., Sloane, J. D., Dunk, R. D., & Wiles, J. R. (2016). Peer-Led Team Learning Helps Minority Students Succeed. *PLOS Biology,14*(3). doi:10.1371/journal.pbio.1002398

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