

Custom 5-Year Retention Analysis

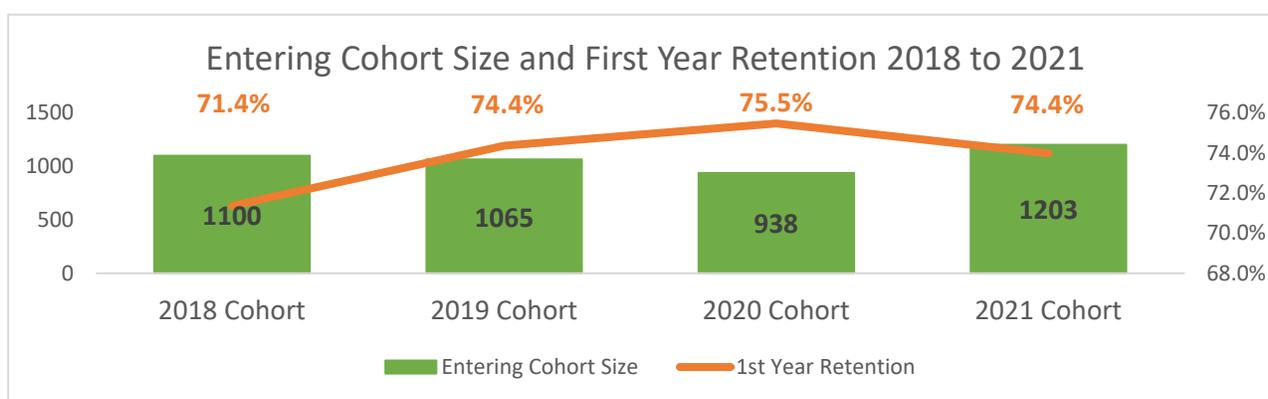
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Source: [Retention and Graduation - No Major Detail: Retention and Graduation Rates - Tableau Server \(mus.edu\)](#) & [CSRDE Retention: CSRDE Cohort Retention - Tableau Server \(mus.edu\)*](#)

High Level Narrative

While overall retention did shrink from the high of 75.5%, the Fall 2020 cohort was the smallest in 5 years, and it is our recommendation that this data point be weighed significantly lower in trending estimates and goal setting.

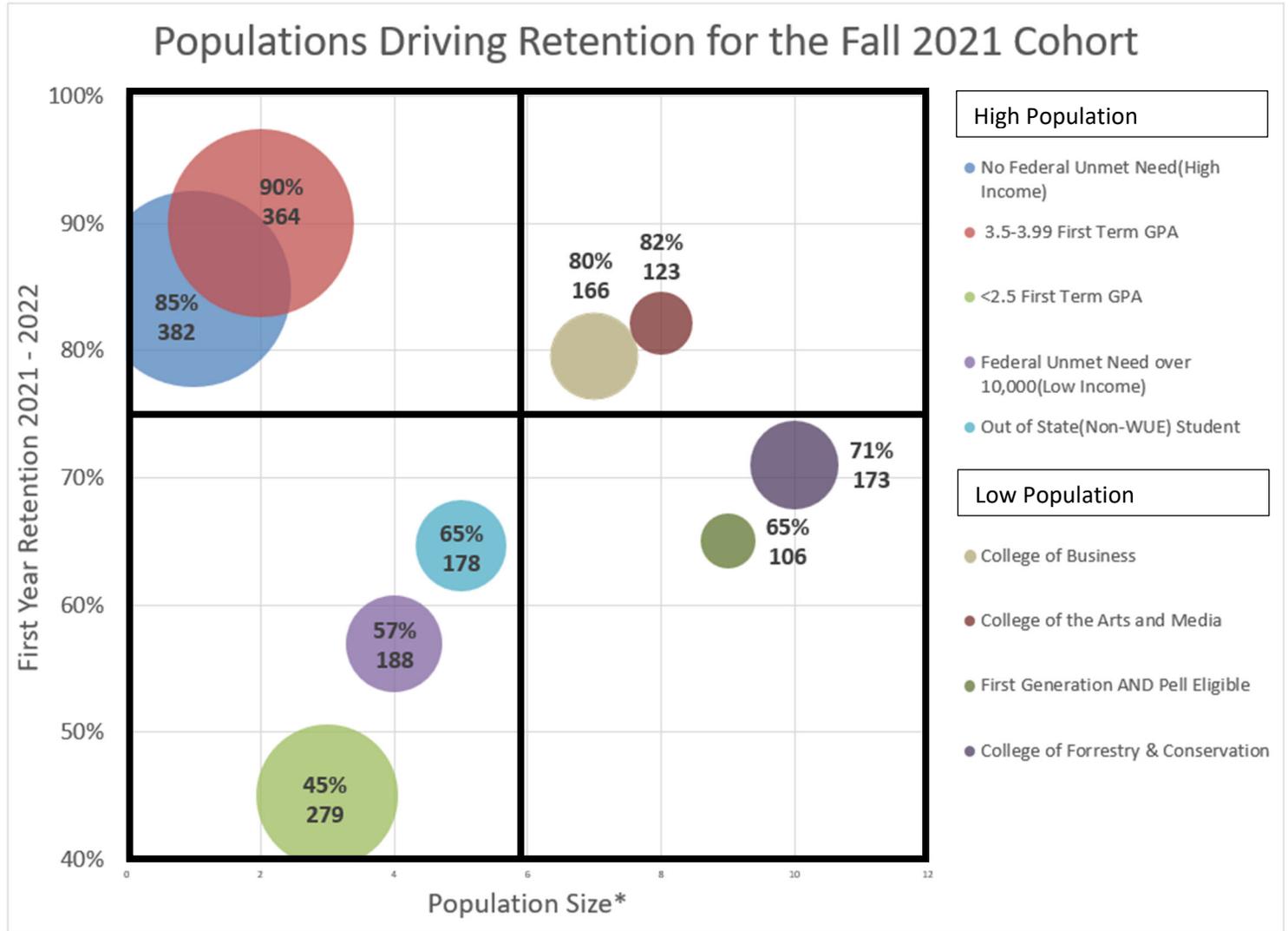
First-Time Full-Time Bachelor's Degree Seeking 1 st Year Retention	Fall 2022 Cohort	Fall 2021 Cohort	Fall 2020 Cohort	Fall 2019 Cohort	Fall 2018 Cohort
1 st Year Retention		74.0%	75.5%	74.4%	71.4%
Entering Cohort	1283	1203	938	1065	1100
% Change in Cohort Size from Previous Year	6%	28%	-12%	-3%	-10%



Main Takeaways and Recommendations

- ❖ University of Montana still **retained 182 additional students** entering Fall 2022 compared to Fall 2021 and the previous cohort. This was due to the large increase in cohort size in Fall 2021. UM would have needed an additional 18 students, for a total of 908 instead of 890, to have reached the same retention percentage of 75.5 from Fall 2021. It is our position after analysis of the data that this Fall 2020 Cohort was an outlier, and a better comparison group demographically is the Fall 2019 cohort; **UM would have only needed 5 students** to reach the Fall 2020 cohort 1st year Retention mark of 74.4.
- ❖ Analysis focused around the hypothesis that there are 3 reasons students do not retain: Academic Preparedness, Financial Need, Engagement.
 - Academic Preparedness - was best assessed at UM with students **1st Term GPA**. It not only had the descriptive differences across GPA bands to account for the additional needed students, it also was the only variable that consistently remained a High-powered Predictor in the Logistic Regressions of each Cohort.
 - Financial Need - was best assessed by **Federal Unmet Need**, which provided a more nuanced look than Pell Eligible of EFC to the growing population of students with High Levels of Financial need that retain at low levels.
 - Engagement - While there were not a robust set of engagement variables available at the time of this report, **Residency** was the variable with the largest change in the last 3 years, with an increasing population of low retention students who may need additional engagement to feel connected at UM.

Quadrant Analysis – Visual



Area	Action
Large Populations & Higher Retention Rates	Ensure this Group Continues to Drive Retention Increases
Large Populations & Lower Retention Rates	Pursue Structural Changes to Alleviate Barriers
Low Populations & Higher Retention Rates	Look to Drive Up Population
Low Populations & Lower Retention Rates	Investigate Population Trends & Look to Provide Customized Support to these Populations

*Populations chosen from Individual Analysis to represent overall trends. Exceptions in Population Order made in cases like College of Forestry and Conservation based on combination of Retention percentages and overall population counts. This analysis takes each of these populations individually, so students in the High Income group may be in the First Term GPA <2.5 group. Multiple student group analysis is done later in the discussion of each individual variable.

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Quadrant Analysis - Narrative

Large Population & High Retention

The story in this Quadrant was High Income students persist at very high levels, across multiple variables we saw this over and over again, but one particular metric stuck out, students with less than zero Federal Unmet Need. This occurs when the Total Aid and scholarships and Estimated Family Contribution exceeds Cost of attendance. In moving forward, it is important to keep this population engaged, as they retain very well above the overall population.

- ❖ Students with less than zero Federal Unmet need grew from 382 to 562 students in the Fall 2022 cohort
- ❖ Students with First Term GPA between 3.5 and 3.99 information is not currently available

Large Population & Low Retention

The Story of this Quadrant is Low Income students. Measured in a variety of ways, whether Out of State and paying the highest Tuition, the unique combination of First Generation and Pell Eligible, or with Unmet Need over 10,000, each of the students in these three subpopulations face financial challenges that are impacting their ability to retain. Any and all of these populations should be focuses of potential structural changes to enable them to overcome those challenges, like mid-year aid packaging adjustments, financial literacy programming, and assistance completing all appropriate financial aid processes.

- ❖ Non-Resident Non-WUE students grew from 179 to 505 students in the Fall 2022 cohort
- ❖ More than 10,000 Federal Unmet Need students grew from 188 to 250 students in the Fall 2022 cohort
- ❖ First Generation and Pell Eligible students grew from 106 to 138 students in the Fall 2022 cohort
- ❖ Students with First Term GPA <2.5 information is not currently available

Low Population & High Retention

The story in this Quadrant was colleges who see very high retention numbers, the College of Arts and Media and the College of Business. These colleges jostle between 4th and 2nd largest colleges within these incoming cohorts, and have high average retentions. As much as possible, these enrollments should be strengthened while best practices are disseminated from their staff and faculty as to how to keep students engaged, supported, and on track to continue their education.

- ❖ College of Business students grew from 166 to 225 students in the Fall 2022 cohort
- ❖ College of Arts and Media students shrank from 123 to 115 students in the Fall 2022 cohort

Low Population & High Retention:

The story in this Quadrant was a singular college which saw a sharp decline in their normally very high retention numbers, the College of Forestry & Conservation. This college jostles between 4th and 2nd largest colleges within these incoming cohort, but has been seeing growing enrollments, but dropped in retention by 7% from 2021 to 2022. Investigations into additional supports for students in these colleges should be pursued.

- ❖ College of Forestry & Conservation students grew from 173 to 220 students in the Fall 2022 cohort
- ❖ First Generation and Pell Eligible students grew from 106 to 138 students in the Fall 2022 cohort

Individual Variable Breakouts and Equity Lens

Equity Lens

In this section we apply each of the additional financial variables back to the top 3 ethnic populations to assess which combinations are most predictive.

- ❖ For **White** students, the highest variance variable was **Unmet Need** – the range between those who have <0 Unmet need and those with >10,000 was 28% - with 85% of those with <0 Unmet need Retaining, and 57% of those with >10,000 retaining.
- ❖ For **Native Americans**, the highest variance variable was **Pell Eligible** – the average range between Pell Eligible Y/N was 10%, for Native Americans it was 32% - with 86% who are Not Pell Eligible Retaining, and 54% who are Pell Eligible Retaining.
- ❖ For **Hispanic** students, the highest variance variable was **Residency** – the average range between Resident/WUE/Non-Resident was 20%, for Hispanics it was 47% - NonResident NonWUE Retained at 40%, and WUE students retained at 87%.

Individual Variable Breakouts

Additional Narrative on demographic changes, retention averages, and understanding the interaction of these changes within each variable on Fall 2022 and Fall 2023 Retention Rates. Additional Variables and areas of investigation are identified in Appendix B.

Overall Cohort Size

Overall Cohort change is a major component of the story of retention, and will continue to be through to Fall 2023. Entering cohorts are increasing as at a dramatic rate: 28% from Fall 2020 to Fall 2021, and 6% from Fall 2021 to Fall 2022. The newest class in Fall 2022 is more than 19% larger than the 3-year average from Fall 2018 to Fall 2020, and coupled with the Fall 2021 class continuing to push through into Sophomore year, **there will be a substantial increase in demand from an extra 443 students** for supportive services, advising, career services to ensure they are all successful into Fall 2023.

	Overall Students Freshman Cohorts 1 st and 2 nd Year Fall 2022	Overall Students Freshman Cohorts 1 st and 2 nd Year Fall 2020
1 st year Cohort	1283	938
2 nd year Cohort	890	792
Total	2,173	1,730

Academic Suspensions

While academic suspensions did occur for the cohorts in question, they represent less than 3% of students in each cohort (see appendix). For this reason, they were not filtered out or considered when analyzing each variable.

WUE Students/Resident Students

The WUE population increased from 23% to 34% in share of total cohort population, serving to amplify the **6.6 decrease** in retention for that population, resulting in **27 fewer students**. At the same time between Fall 2020 and Fall 2021, resident student populations went from 61% to 51%, reducing the impact of the **0.7 increase** in retention for that population, resulting in **4 additional students**.

Bottom Line: WUE persistence declined between the 2020 and 2021 cohorts while resident student persistence in those same cohorts increased. Out-of-state student persistence in general also declined. Because WUE made up a larger share of the 2021 cohort, their retention decline was felt more prominently.

Intervention Suggestions: The demographic change reversed going into the Fall 2022 cohort, with WUE students dropping to 9% of students in that cohort, and Non-Resident Non-WUE students jumping to 39%. This is a significant concern, as non-resident students have the lowest of all three retention rates, coming in at 65% for the Fall 2021 cohort. Had they accounted for 39% of the Fall 2021 cohort, **it would have dropped retention to from 74.0% to 71.0%**

We would recommend a 3-fold approach of financial review of these students to ensure any persistent gaps for financing are addressed, specialized group programming to help build community, and in-depth interviews with staff who most often interact with students to ask what pain points they have experienced between Fall 2020 and Fall 2022.

Race/Ethnicity (Montana Race not IPEDS)

The Native American share of the cohort shifted from 5% to 16% from Fall 2019 to Fall 2020, with the share of the population which was white shifted from 83% to 72% during the same time period. This was most likely the result of additional High School outreach conducted by the director of AISS and the Tribal Liaison. Though it provides an incredible opportunity to increase equitable outcomes, it also provides additional evidence to support that the Fall 2020 cohort was an outlier. The population percentages returned in Fall 2021 to 8% and 80% for Native and White student share of the total cohort respectively. This meant that the **3.7% increase** in retention for Native Students of had a muted effect, resulting in only **3 additional students**, while the **3.8% decrease** in retention for white students of had an amplified effect, resulting in **36 fewer students**.

Bottom Line: Though all non-white students saw an increase in retention between the 2020 and 2021 cohorts, the decline in white student persistence given their overwhelming representation in the overall population dragged the overall retention rate for the 2021 cohort down. While Native American students saw an increase in persistence between the 2020 and 2021 cohorts, the steep drop in their percentage of the population in 2021 means that 2020 is most likely a statistical outlier.

Intervention Suggestions: This cohort in the Fall 2022 cohort is largely unchanged with white students coming in at 77% of the cohort. At this stage it is too large to effectively recommend interventions at this level, we would recommend cross-sectional analysis to identify actionable student groups (between 100 and 150 students) – see below.

College Level Analysis

Further review of the College level Retention data reinforced Fall 2020 cohort as an outlier. Humanities and Sciences, Business, and Arts and Media, the top 3 colleges, all had 5-10 point swings, with Fall 2021 cohort retention numbers falling in line with Fall 2019 percentages. A notable exception to this trend is the College of Forestry & Conservation, who have had steady increases in students, and a sharp decline in retention.

Humanities and Sciences had a very high retention for the Fall 2020 cohort, at a time when their total of the population actually decreased from 51% to 47%. This meant that when it returned in Fall 2021 to 52%, the **4.3% decrease** was amplified resulting in **31 fewer students**. At the same time, College of Business and College of Arts and Media saw a **9.5% increase** and **8.4% increase** respectively, resulting in an **additional 25 students** combined. Combining this with the additional **6.9 decrease** from the College of Forestry & Conservation, resulting in **12 fewer students**, this variable does just barely meet the threshold of accounting for 18 students above. This variable showed significant variability, and we would caution against increasing granularity within college, as departmental or major specific outreach and action is historically difficult within higher education.

Bottom Line: Though we do strongly support department and major level KPIs for Retention, additional analysis within those subpopulations is necessary to benchmark them appropriately and we would recommend that be scoped as its own project.

Intervention Suggestions: The Fall 2022 cohort does have elevated student enrollment in Forestry and Conservation, which has had reductions that are not consistent with any outlier theory. We recommend a deeper analysis within the College to see what supports exist for students that may have shifted in the last 1 year, and an analysis of major level trending for the last 3 years.

Low Income (Pell Eligible)

Low Income Students accounted for 29% of the Fall 2021 cohort, a percentage that has been consistent since the fall 2019 cohort. This population consistently comes in significantly lower than the overall, hovering around 68% retention

since Fall 2018. The significant change that occurred in Fall 2021 was the reduction of the Not Pell Eligible Retention rate back down to Pre-Fall 2020 levels of 77%, instead of the likely outlier of 79.5%. This clearly indicates that financial metrics are a key to understanding the subpopulation, but population sizes are still too large/broad to be meaningfully actionable.

Bottom Line: We strongly recommend additional analysis, as was the case in the Race/Ethnicity metric

Intervention Suggestions: The Fall 2022 cohort has similar percentages of Pell Eligible students.

Federal Unmet Need

This variable gives us a better answer as to the kinds of changes that might be occurring with regards to overall income levels of students attending. [Explained in more detail here](#), it is a calculation that occurs for all students regardless of their FAFSA filing status, that computes Cost of attendance minus Scholarships and Grants and Estimated Family Contribution[COA – (AID+EFC)]. This allows us to understand well beyond simply EFC/Pell Eligible Status, how much financial need each student is in, and monitor across meaningful subsets.

We saw an **11 percent increase** in retention for students with between 5K and 10K Unmet need, but their share of the population actually went down slightly, meaning it only resulted in an **additional 14 students**. At the same time, a **decrease of 6 percent and 3 percent** at the 0 and 0 to 5K bands resulted in **26 fewer students**. The proportion of students with 0 Unmet need did increase, with the share largely coming from those with Less than 0 Unmet need. Biggest callout is that >10000 is growing, and they have the worst rate of retention, averaging 57.9.

Bottom Line: Overall this metric does not explain by itself the 18 students, but it provides insight into the shifting family incomes students have to use to pay for UM tuition and services.

Intervention Suggestions: The Fall 2022 Cohort has the highest number(250) and the highest proportion (20%)of students with Federal Unmet need over 10,000. This population needs to be reviewed and ensured that they are having removed any significant financial barriers, as they are most likely to be in danger from them.

Based on sharing our initial results, we choose to dig deeper into the subpopulation for Federal Unmet Need >10,000. See Appendix for additional tables; these are the highlights of our review:

Of the variables we examined, Residency and Federal Unmet Need has the most concerning trending within this subpopulation. Non-Resident student's retention in this subpopulation have had a consistently declining retention rate, which peaked in 2020 with the 2019 cohort at 55%, and fell all the way to 42% in Fall 2022 with the 2021 cohort. The Fall 2022 cohort has more of these students than any previous cohort, the raw number jumping to over 100 in the Fall 2022 cohort, up from 38 in Fall 2021.

Discussions with admissions and financial aid have indicated that this difference was based on a policy change in how aid was distributed, and how WUE students received scholarship awards. Additional Analysis is needed to investigate whether the short-term tuition gains from that decision will outpace potential losses from 4-year tuition based on the various retention rates explored in this report.

Additional analysis reveals that while the overall population sees female(sex at birth) students is slightly ahead of males, in this subpopulation it is consistently lower, to the tune of 2 – 18% depending on the year. In 2021 this discrepancy was at its height, with female students in this cohort retaining at 49%, and males at 67%. Year over year comparison and cross value proportion analysis is inconclusive on overall trends or better variables to use, but this is a notable difference.

Analysis on First Generation indicates that Non-First Generation students in this cohort retain at between 6 and 15 points, with First Generation students being consistently lower. Trending here is inconclusive, and while decreasing trending from Non-First Generation students is concerning, they still retain higher than First Generation students.

1st Term Attempted Credits

This was largely within industry trends, where students who attempted 15 credits retained at a higher rate than those who attempted 12-14, and those who attempted 16-18 retained at an even higher rate. This was consistent across the past 4 years, but unfortunately the total percentage of students who are attempting 12-14 credits grew to 41%, bucking the trend of the 3 years prior to stay constant at 35%. Thankfully, that subpopulations **retention increased 3%**, which combined

with the increased population did net an **additional 12 students**. Sadly, the retention for students 15 credits and above did not show any particular trend, and the **declines of 5% and 2%** for 15 and 16-18 credit groups respectively, resulted in **19 fewer students**.

Bottom Line: We strongly recommend redoubling efforts to encourage students to attempt 15 credits every semester, as this data shows those populations have a rate of retention that is consistently higher than the average.

Intervention Suggestions: Monitoring the almost 542 students who are attempting only 12-14 credits in the Fall 2022 cohort be critical, and ensuring they can cross the appropriate thresholds for 1st Term GPA set out below is a prime focus area.

1st Term GPA

This analysis uncovered trends we expected, with higher 1st term GPAs Retaining at higher levels, with students below a 2.0 retaining at 36% in the 2021 cohort, and students with 3.5-3.99 retaining at 90%. Notably, the 4.0 students retained at 75%, also consistent with national trends, indicating transfer instead of non-continuation. Rates for these subpopulations were mostly consistent across the 4 years, with more consistently in the 2.0-3.5 bands, and more variance at <2.0 and 3.5-3.99, and 4.0 bands. An overall **decrease in retention of 7%** for the 4.0 students resulted in **13 fewer students**, but was offset by an **increase of retention of 8%** for the <2.0 students resulting in **14 additional students**.

Bottom Line: While trends are on the rise for students who have below at 3.5 GPA, students above that are retaining at a lower percentage.

Intervention Suggestions: Additional peer tutoring opportunities for them to flex their knowledge, get involved, and help lead the student body should be explored for this population post December 2022 grades.

High School GPA

Overall this analysis showed what we expected it to, with students with higher HS GPAs retaining at higher levels, with the vast majority of students being between 3.0 and 4.0, and that proportion remaining very consistent over the last 4 years. Average GPA for this cohort increased from 3.36 for the Fall 2020 cohort, to 3.39 in the Fall 2021 cohort, in line with the minor shifts up in the 3.0 – 3.99 population percentages.

A deeper look shows us that the 3.5-3.99 cohort drives retention up, with rates in the high 70s, but has been steadily declining in terms of their retention. Peaking in the Fall 2019 cohort at 85% retention, retention decreased to 81% by Fall 2021, which resulted in **11 fewer students**. Coupled with a drops in the 3.0 – 3.49 band and the 2.5 – 2.99 band that were consistent with 2020 data being an outlier, an additional **18 fewer students** were retained.

Bottom Line: Students with below a 3.0 historically retain at a combined 54% average across all 4 years, with students 3.0 to 3.5 retaining at around 70%, 3.5-3.99 around 80%, and students with a 4.0 in the low 90s.

Intervention Suggestions: The Fall 2022 cohort has only slight differences in the overall composition, with about 3% of the population shifting from 3.0-3.5 range to 3.5-3.99 range. This has resulted in a higher HS GPA of 3.41, but students with 3.5-3.99 HS GPAs deserve additional study as to why their retention is decreasing.

Logistic Regressions and Statistical Significance

In an effort to go beyond simple descriptive statistics, cohorts discussed in this report were subjected to statistical analysis to determine statistically significance between those within particular sub-populations, and between cohorts. Additionally, Logistic Regressions were run to identify additional variables that may hold more long-term or powerful predictive properties.

Statistical Significance

Initial testing of the overall retention rate for Fall 21 and Fall 20 cohorts concluded that there was no statistically significant difference. Recognizing that these numbers are tied to budgetary concerns for the institution, we continued our analysis focused on low-income students, and specifically the Pell Eligible variable. Analysis between Pell Eligible and Non-Pell Eligible students was determined to be statistically significant in each of the Fall 21, 20 and 19 cohorts. This finding

demonstrates that if we focus on increasing the retention rates of those who are Pell Eligible, that has a good chance to increase the overall retention.

Logistic Regression

The goal of this analysis is to use logistic regression to determine if there is a statistically significant relationship between the independent variables examined and the retention of students in the analysis sample to the second year of study at the institution.

Why Logistic Regression?

Student persistence toward degree completion and student departure prior to graduation are driven by a myriad of factors. The nature of students' decisions about whether to remain enrolled or depart their program of study is largely mysterious and any empirically-based claims of understanding the big picture of student retention are typically based on studies that control for as many factors influencing students' decision making as possible. This analysis attempted to control for various student characteristics and other factors identified in seminal literature that could predictably influence student retention. There are various additional factors at play that the analysis did not investigate.

By examining additional pieces of information about a student, we can develop a more accurate view of the probability of that student returning for a second year of study. This analysis examines the following independent variables and their relationship to student retention: socioeconomic status; whether students are first-generation in their family to attend college; first semester grade point average; and enrollment in developmental coursework. This analysis also investigates whether the type of academic advisor a student meets with during their first year of study – professional/primary role advisor or faculty advisor – influences their persistence to the second year.

The target population of the analysis consisted of all first-time, full-time, four-year degree-seeking students who matriculated to the University of Montana during the fall 2021 semester (n=1,203). Using listwise deletion to omit cases with missing variables, 20 cases were omitted, resulting in a sample of 1,183 cases that were included in the analysis. SPSS outputs for logistic regression permit evaluating the unique, independent predictive effects of multiple variables. Results from the analysis are shown in the table below:

Summary of Logistic Regression Analysis Predicting Student Retention (Fall 2021 cohort)

Variable	<i>B</i>	<i>SE</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>
First Generation	.210	.384	.300	1	.584	1.234
Not First Generation	.284	.332	.730	1	.393	1.328
Low Income	-.943	.453	4.345	1	.037	.389
Not Low Income	-.160	.398	.163	1	.686	.852
Developmental Enrollment	1.081	1.121	.929	1	.335	2.947
Advisor Type	-.055	.604	.008	1	.927	.946
First Semester GPA	1.414	.178	63.336	1	<.001	4.111

The results of the logistic regression analysis show that **low-income status and first semester GPA are the only two independent variables examined with a statistically significant relationship to student retention** (these variables' results are bolded in the above table). Low-income students are less likely to be retained to the second year of study than students in the overall analysis sample, and higher first semester GPAs increase the likelihood of students being retained to the second year. To interpret these relationships in a more detailed manner, and to calculate the specific change in the likelihood of students being retained to the second year of study based on the influence of the independent variables, it is

necessary to examine the logistic regression coefficients reported in the above table. This analysis does not provide that level of detail.

Additional Analysis of the Fall 2020 and Fall 2019 cohort reinforces that the 1st Term GPA is consistently a powerful predictor. The Low Income variable, which is also based on the Pell Eligible formula's from the Statistical Significance analysis above, does not consistently rank as one of the top predictors. This combination of information indicates we need additional study, and we will reserve recommendations around Pell Eligible as a metric for interventions until such time as that analysis is complete.

Summary of Logistic Regression Analysis Predicting Student Retention (Fall 2020 cohort)

Variable	<i>B</i>	<i>SE</i>	<i>Wald</i>	df	<i>Sig.</i>	<i>Exp(B)</i>
First Generation	-.889	.802	1.231	1	.267	.411
Not First Generation	-1.196	.764	2.448	1	.118	.302
Low Income	.034	.569	.004	1	.952	1.035
Not Low Income	1.129	.558	4.091	1	.043	3.092
Developmental Enrollment	.559	1.227	.208	1	.649	1.749
Advisor Type	.547	.718	.582	1	.446	1.729
First Semester GPA	1.574	.306	26.495	1	<.001	4.826

Summary of Logistic Regression Analysis Predicting Student Retention (Fall 2019 cohort)

Variable	<i>B</i>	<i>SE</i>	<i>Wald</i>	df	<i>Sig.</i>	<i>Exp(B)</i>
First Generation	-.078	.222	.125	1	.723	.925
Not First Generation	-.080	.233	.119	1	.731	.923
Low Income	-.270	.245	1.218	1	.270	.763
Not Low Income	-.087	.234	.138	1	.710	.917
Developmental Enrollment	.071	.517	.019	1	.890	1.074
Advisor Type	-.278	.270	1.060	1	.303	.758
First Semester GPA	.978	.081	145.430	1	<.001	2.658

However, this analysis paired with the individual variable descriptive statistics would indicate that Early Alerts and additional scholastic support should be provided to students in the first term to attempt to get as high a GPA as possible. Guidance from the descriptive statistics shows us that as long as students achieve at least a 2.5 GPA, they are likely to retain at 75% or above.

Further Analysis and Disclaimer

For further analysis we would recommend additional analysis focus on the 4 primary categories of: Demographic Factors, Academic Preparedness, Financial Wellness and Student Engagement. A list of recommended Variables can be referenced in Appendix B.

Disclaimer: These numbers are not meant to be provided for any state or federal reporting of any kind. Please consult the UM IR Department to confirm official numbers, as cohorts can shift over time as IPEDS accounts for shifts like untimely Death, Active-Duty Deployment, and other forms of acceptable removal or update to cohort information that are not accounted for here.

Custom 5-Year Retention Analysis

Appendices

Appendix A: Full Tables

First-Time Full-Time Bachelor's Degree Seeking Retention for the last 4-Years

Sex at Birth (in %)	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
Female	59.0	74.5	75.4	74.4	74.0
Male	41.0	73.2	75.6	74.3	67.9

Percentage of the Population – First-Time Full-Time Bachelor's Degree Seeking

Sex at Birth	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Total	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Female	765	59.6%	725	60.3%	565	60.2%	626	58.8%	626	56.9%
Male	518	40.4%	478	39.7%	373	39.8%	439	41.2%	474	43.1%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Residency(in %)	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
Resident	57.6	74.9	74.2	73.4	71.7
Out-of-State	18.1	64.6	68.8	69.2	65.8
WUE	24.2	76.6	83.3	79.7	80.9

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Residency	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Total	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Resident	661	51.5%	614	51.0%	573	61.1%	602	56.5%	681	61.9%
Out-of-State	117	9.1%	178	14.8%	144	15.4%	182	17.1%	278	25.3%
WUE	505	39.4%	411	34.2%	221	23.6%	281	26.4%	141	12.8%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

College of Initial Entry (in %)	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
Humanities and Sciences	50.8	72.1	77.1	69.6	71.2
Business	13.1	79.5	70.0	83.7	77.8
Arts and Media	12.6	82.1	73.7	80.3	68.0
Forestry and Conservation	12.6	71.7	78.6	77.9	76.5
Health	7.3	71.2	73.0	77.9	65.8
Education	3.4	71.1	82.1	68.8	62.8

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

College of Initial Entry	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Total	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Humanities and Sciences	605	47.2%	630	52.4%	441	47.0%	546	51.3%	576	52.4%
Business	225	17.5%	166	13.8%	150	16.0%	129	12.1%	117	10.6%

Arts and Media	115	9.0%	123	10.2%	133	14.2%	132	12.4%	153	13.9%
Forestry and Conservation	220	17.1%	173	14.4%	112	11.9%	131	12.3%	132	12.0%
Health	68	5.3%	66	5.5%	74	7.9%	95	8.9%	79	7.2%
Education	50	3.9%	45	3.7%	28	3.0%	32	3.0%	43	3.9%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

First Generation	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
Yes	78.9%	75.4%	78.4%	75.7%	75.7%
No	20.0%	72.2%	71.5%	73.9%	69.4%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

First Generation	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Yes	981	76.5%	949	78.9%	573	61.1%	567	53.2%	580	52.7%
No	302	23.5%	241	20.0%	362	38.6%	490	46.0%	497	45.2%

First Time Full Time Bachelors Degree Seeking Students AND First Generation AND Pell Eligible

Values	Pell Eligible(Y/N)	2022 Cohort	2021 Cohort	2020 Cohort	2019 Cohort	2018 Cohort
Total Starting Cohort	All	302	241	362	490	497
Raw Total Retained 2nd Year	All		174	259	362	345
Total Retention	All		72.2%	71.5%	73.9%	69.4%

Starting Cohort	Not Pell Eligible	164	135	212	335	297
	Pell Eligible	138	106	150	155	200
% of Total Cohort	Not Pell Eligible	54.3%	56.0%	58.6%	68.4%	59.8%
	Pell Eligible	45.7%	44.0%	41.4%	31.6%	40.2%
Retention	Not Pell Eligible		77.8%	76.9%	77.0%	74.1%
	Pell Eligible		65.1%	64.0%	67.1%	62.5%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Low Income(Pell Eligible)	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0%	75.5%	74.4%	71.4%
Yes	69%	77.9%	79.5%	77.1%	76.0%
No	31%	67.2%	67.5%	69.4%	66.8%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Low Income(Pell Eligible)	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Yes	942	73.4%	846	70.3%	640	68.2%	750	70.4%	697	63.4%
No	341	26.6%	344	28.6%	295	31.4%	307	28.8%	380	34.5%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Federal Unmet Need 1 st Year	4-Year Ave % of Population*	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
<0	35%	84.8%	82.9%	79.7%	82.0%
0	23%	75.1%	81.1%	76.9%	71.7%
1-4999	16%	74.5%	77.9%	75.0%	72.5%
5000-9999	12%	71.2%	59.6%	67.8%	65.8%
>10,000	13%	56.9%	57.7%	58.6%	58.3%

*These numbers may not add up to 100%, as the total counts included less than 1% of students on which there was no financial aid information. Please see final appendix for more details.

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Federal Unmet Need 1 st Year	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
<0	562	43.8%	382	31.8%	369	39.3%	395	37.1%	356	32.4%
0	161	12.5%	349	29.0%	180	19.2%	238	22.3%	254	23.1%
1-4999	154	12.0%	145	12.1%	154	16.4%	204	19.2%	189	17.2%
5000-9999	156	12.2%	125	10.4%	109	11.6%	121	11.4%	146	13.3%
>10,000	250	19.5%	188	15.6%	123	13.1%	99	9.3%	132	12.0%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

AIQ Completed	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019

Baseline		74.0	75.5	74.4	71.4
Yes	81%	74.5%	77.9%	76.2%	72.0%
No	19%	66.2%	61.5%	71.3%	69.0%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

AIQ Completed	Raw Total Fall 2022*	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Yes	1162	90.6%	1128	93.8%	797	85.0%	664	62.3%	888	80.7%
No	121	9.4%	71	5.9%	135	14.4%	401	37.7%	210	19.1%

*These numbers may not add up to 100%, as the total counts included less than 1% of students on which there was no financial aid information. Please see final appendix for more details.

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Student Athlete	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
No	92%	72.9%	74.9%	73.3%	70.1%
Yes	8%	88.8%	81.9%	86.7%	84.7%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Student Athlete	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%

No	1214	94.6%	1123	93.3%	866	92.3%	982	92.2%	1002	91.1%
Yes	69	5.4%	80	6.7%	72	7.7%	83	7.8%	98	8.9%

*These numbers may not add up to 100%, as the total counts included less than 1% of students on which there was no financial aid information. Please see final appendix for more details.

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

HS GPA	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
4	8%	92.2%	90.7%	95.0%	98.6%
3.5-3.99	44%	81.0%	83.1%	85.0%	79.0%
3-3.49	28%	70.8%	73.8%	69.7%	67.0%
2.5-2.99	15%	53.1%	58.5%	49.7%	55.1%
2.0-2.49	5%	54.8%	52.3%	62.3%	51.9%
<2	2%	57.7%	57.7%	35.0%	62.5%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

HS GPA	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
4	107	8.3%	102	8.5%	75	8.0%	80	7.5%	71	6.5%
3.5-3.99	607	47.3%	541	45.0%	414	44.1%	459	43.1%	467	42.5%
3-3.49	309	24.1%	332	27.6%	237	25.3%	304	28.5%	315	28.6%
2.5-2.99	177	13.8%	160	13.3%	142	15.1%	149	14.0%	185	16.8%
2.0-2.49	59	4.6%	42	3.5%	44	4.7%	53	5.0%	54	4.9%
<2	24	1.9%	26	2.2%	26	2.8%	20	1.9%	8	0.7%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

1 st Term GPA	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
4	13%	75.7%	83.0%	80.2%	62.6%
3.5-3.99	29%	90.4%	93.0%	88.7%	89.6%
3-3.49	21%	80.6%	79.1%	83.9%	82.1%
2.5-2.99	15%	75.1%	72.9%	73.3%	78.7%
2.0-2.49	9%	63.4%	62.5%	66.3%	63.2%
<2	13%	36.0%	28.0%	28.7%	22.0%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

1 st Term GPA	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
4	N/A	N/A	177	14.7%	141	15.0%	116	10.9%	139	12.6%
3.5-3.99	N/A	N/A	364	30.3%	285	30.4%	319	30.0%	288	26.2%
3-3.49	N/A	N/A	206	17.1%	201	21.4%	230	21.6%	240	21.8%
2.5-2.99	N/A	N/A	177	14.7%	129	13.8%	165	15.5%	178	16.2%
2.0-2.49	N/A	N/A	101	8.4%	64	6.8%	92	8.6%	114	10.4%
<2	N/A	N/A	178	14.8%	118	12.6%	143	13.4%	141	12.8%

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

1 st Term Attempted Credits	4-Year Ave % of Population	Fall 2021 – Fall 2022 Census	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
12 - 14	37.5%	68.1%	66.1%	67.1%	65.2%
15	22.4%	73.9%	79.5%	75.8%	74.9%

16 -18	35.8%	83.3%	80.6%	80.7%	78.9%
>18	3.3%	100.0%	93.9%	81.4%	75.7%
No Information	<1%				

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

1 st Term Attempted Credits	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
12 - 14	542	42.2%	488	41.6%	327	35.5%	375	35.7%	395	37.1%
15	356	27.7%	282	23.9%	217	23.3%	223	20.9%	228	21.4%
16 -18	353	27.5%	406	30.9%	361	37.4%	424	38.5%	441	36.2%
>18	30	2.3%	26	2.2%	33	3.5%	42	4.0%	36	3.4%
No Information	2		17		2		9		22	

First-Time Full-Time Bachelor's Degree Seeking Retention for the last 4-Years

Race/Ethnicity(in %)	4-Year Ave % of Population	Fall 2021 – Fall 2022 CENSUS	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline		74.0	75.5	74.4	71.4
White	79.5	73.9	77.6	75.8	73.1
American Indian or Alaska Native	8.5	69.2	65.5*	55.8	55.6
Hispanic	5.5	75.7	81.1	64.4	66.5
Two or More Races	3.4	77.8	65.4	77.5	71.4
Asian	0.7	83.3	66.7	100.0	85.7
Black/African American	1.0	90.0	58.3	87.5	53.8
Unknown	0.4	60.0	50.0	100.0	25.0
Non-Resident Alien	0.8	83.3	100.0	70.0	75.0

Native Hawaiian and Other Pacific Islander	0.2	100.0	100.0	100.0	100.0
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Percentage of the Population – First-Time Full-Time Bachelor's Degree Seeking

Race/Ethnicity	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Total	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
White	986	76.9%	958	79.6%	678	72.3%	886	83.2%	914	83.1%
Indian/Alaska	N/A	N/A	91	7.6%	148	15.8%	52	4.9%	63	5.7%
Hispanic	N/A	N/A	70	5.8%	53	5.7%	59	5.5%	55	5.0%
Two or More Races	N/A	N/A	45	3.7%	26	2.8%	40	3.8%	35	3.2%
Asian	16	1.2%	12	<1.0%	9	<1.0%	6	<1.0%	7	0.6%
Black	8	0.6%	10	<1.0%	12	<1.0%	8	<1.0%	13	1.2%
Unknown	48	3.7%	10	<1.0%	2	<1.0%	1	<1.0%	4	0.4%
Non-Resident Alien	12	0.9%	6	<1.0%	8	<1.0%	10	<1.0%	8	0.7%
Hawaiian	1	0.1%	1	<1.0%	2	<1.0%	3	<1.0%	1	0.1%

*N/A on Fall 2022 for some races because data was only provided for Montana Race prior to this cohort, and Montana Race calculations can effect the total counts of students in Native American, Hispanic, and Two or More Races buckets.

Federal Unmet Need >10,000 in 1st Year AND First Time Full Time Bachelors Degree Seeking Students AND Sex at Birth

Values	Sex at Birth	2022 Cohort	2021 Cohort	2020 Cohort	2019 Cohort	2018 Cohort
	All					
Total Starting Cohort	All	250	188	123	99	132
Raw Total Retained 2nd Year	All		107	71	58	77
Total Retention	All		56.9%	57.7%	58.6%	58.3%
Starting Cohort	Female	145	107	67	48	75
	Male	105	81	56	51	57

% of Total Cohort	Female	58.0%	56.9%	54.5%	48.5%	56.8%
	Male	42.0%	43.1%	45.5%	51.5%	43.2%
Retention	Female		49.5%	56.7%	52.1%	57.3%
	Male		66.7%	58.9%	64.7%	59.6%

Federal Unmet Need >10,000 in 1st Year AND First Time Full Time Bachelors Degree Seeking Students AND Residency

Values	Residency	2022 Cohort	2021 Cohort	2020 Cohort	2019 Cohort	2018 Cohort
Total Starting Cohort	All	250	188	123	99	132
Raw Total Retained 2nd Year	All		107	71	58	77
Total Retention	All		56.9%	57.7%	58.6%	58.3%
Starting Cohort	Resident	123	104	70	49	81
	WUE	22	46	29	23	6
	Non-Resident	105	38	24	27	45
% of Total Cohort	Resident	49.2%	55.3%	56.9%	49.5%	61.4%
	WUE	8.8%	24.5%	23.6%	23.2%	4.5%
	Non-Resident	42.0%	20.2%	19.5%	27.3%	34.1%
Retention	Resident		61.5%	57.1%	59.2%	63.0%
	WUE		58.7%	69.0%	60.9%	66.7%
	Non-Resident		42.1%	45.8%	55.6%	48.9%

Federal Unmet Need >10,000 in 1st Year AND First Time Full Time Bachelors Degree Seeking Students AND First Generation

Values	First Generation	2022 Cohort	2021 Cohort	2020 Cohort	2019 Cohort	2018 Cohort
Total Starting Cohort		250	188	123	99	132
Raw Total Retained 2nd Year			107	71	58	77
Total Retention			56.9%	57.7%	58.6%	58.3%

Starting Cohort	First Generation	89	57	57	46	67
	Not First Generation	161	131	66	53	65
% of Total Cohort	First Generation	35.6%	30.3%	46.3%	46.5%	50.8%
	Not First Generation	64.4%	69.7%	53.7%	53.5%	49.2%
Retention	First Generation		52.6%	49.1%	54.3%	49.3%
	Not First Generation		58.8%	65.2%	62.3%	67.7%

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Academic Suspensions	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	% of Cohort Fall 2018
Baseline	1283	100%	1203	100%	938	100%	1065	100%	1100	100%
Yes	N/A	N/A	34	2.8%	39	4.2%	24	2.3%	44	4.0%
No	N/A	N/A	1169	97.2%	899	95.8%	1041	97.7%	1056	96.0%

Appendix B: Examples of Further Analysis

Additional Variables

Categories	Variables	Challenge
Specific Program Effectiveness	Montana 10	Students are Randomly selected, and half are not accepted , so a specific report should be done comparing this program.
Specific Program Effectiveness	TRIO	Students are eligible based on their adherence to ANY of the eligibility qualifications. Effective analysis would compare individual groups within TRIO to their respective control groups.
Specific Program Effectiveness	Advisor Type	Total population with a Professional Advisor is very high, making any comparisons difficult.
Specific Program Effectiveness	Major	This is difficult to compare against other majors, and N sizes become very small when doing year over year comparisons. We would recommend this analysis be done by individual departments.
Specific Program Effectiveness	Developmental Coursework	Enrollment is very low in these courses, making it difficult to compare to the overall population.
Demographic Factors	Person with Disabilities	Bandwidth and Confirmation of Queries
Financial Factors	UBABILL Balance	While this is something stakeholders brought up, discussions with Financial Aid/Student Accounts offices indicated that the information is not available on a per student per day basis, and so therefore verifying would be difficult as this would be net-new information. Individual research around what times are most important to look at would be necessary to provide more grounding of this variable. We do recommend this as something that is developed by the university.
Financial Factors	Receipt of Federal Aid Amount of Scholarships Provided	Bandwidth and Confirmation of Queries
Academic Preparedness	1st Term Attempted Credits	Bandwidth and Confirmation of Queries
Student Engagement	Student Activity Participation Student Leadership in Clubs/Organizations	Bandwidth and Confirmation of Queries

Challenge: Specific for each variable

1 Year Registrations Trending - % of Student Registered for next Fall

Month	Fall 2022	Fall 2021
February		
March		
April		
May		
June		
July		
August		
September		

Challenge: Current Business Practices of Backdating registrations can cause Minimum Add Date from SFRSTCA to be close but not reliable. The best case scenario would involve using sfrstca_source_cde and sfrstca_message fields.

Predictive Analytics on Population A

Categories	Variables(examples)	Combined Predictive Power
Demographic Factors	IPEDS Race MT Race Sex at Birth First Generation Status	Combined P Value
Financial Factors	Pell Eligible Receipt of Federal Aid UBABILL Balance Residency Status	Combined P Value
Academic Preparedness	1 st Term GPA HS GPA	Combined P Value
Student Engagement	Athlete Student Activity Participation	Combined P Value

Challenge: Confirming all Variables and Time/Bandwidth

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Specialty Cohorts	4-Year Ave % of Population	Fall 2021 – Fall 2022 8.22.2022	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Baseline					
Veterans					
Honors					
GearUp					
Montana10					
Global Leadership Initiative					

*Trio not included b/c of multiple eligibility requirements, see additional variables list for more context

Percentage of the Population – First Time Full Time Bachelors Degree Seeking

Specialty Cohort: TRIO	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018
Baseline									
Veterans									
Honors									
GearUp									
Montana10									
Global Leadership Initiative									

First Time Full Time Bachelors Degree Seeking Retention for the last 4-Years

Specialty Cohort: TRIO	4-Year Ave % of Population	Fall 2021 – Fall 2022 8.22.2022	Fall 2020 – Fall 2021	Fall 2019 – Fall 2020	Fall 2018 – Fall 2019
Overall Total					
TRIO Total					
TRIO - Financial					
NonTRIO - Financial					
TRIO – First Generation					
NonTRIO – First Generation					
TRIO – Person with Disability					
NonTRIO – Person with Disability					
TRIO – Finance&First Generation					
NonTRIO – Finance&First Generation					
TRIO – Finance&Person with Disability					
NonTRIO – Finance&Person with Disability					
TRIO – First Generation&Person with Disability					
NonTRIO – First Generation&Person with Disability					

*Trio not included b/c of multiple eligibility requirements, see additional variables list for more context

Specialty Cohort: TRIO	Raw Total Fall 2022	% of Cohort Fall 2022	Raw Total Fall 2021	% of Cohort Fall 2021	Raw Total Fall 2020	% of Cohort Fall 2020	Raw Total Fall 2019	% of Cohort Fall 2019	Raw Total Fall 2018	Raw Total Fall 2022
Overall Total										

TRIO Total										
TRIO - Financial										
NonTRIO - Financial										
TRIO – First Generation										
NonTRIO – First Generation										
TRIO – Person with Disability										
NonTRIO – Person with Disability										
TRIO – Finance&First Generation										
NonTRIO – Finance&First Generation										
TRIO – Finance&Person with Disability										
NonTRIO – Finance&Person with Disability										
TRIO – First Generation&Person with Disability										
NonTRIO – First Generation&Person with Disability										

Appendix C: Data Inconsistencies

Various Inconsistencies with existing reporting were uncovered during the process of this analysis. These inconsistencies were disregarded for the vast majority of our conclusions, as they accounted for less than 2% of the overall population of each starting cohort, but they are documented here for quality teams within the institution to address through process change, data cleaning, or updated data definitions.

- 1203 vs 1204 – Entering cohort size for Fall 2021 was reported as 1203 for First Time Full Time Degree seeking students in previous cohorts, but upon analysis, IR office determined it was actually 1204. Original 1203 was used for this analysis, but extra student is documented in excel files and rationale is documented here:

“Matthew,

There was a new first-time student majoring in pharmacy that I did not catch in the CSRDE before reporting. When doing the dashboard this student was allocated to the Pharmacy cohort. It is just a case of bad data. Technically a new freshman does not have a pharmd major but starts with a pre-pharmacy major. My CSRDE queries omits the pre-pharm students but not the pharmd students because like I said the student should probably be either a transfer student starting in the pharmd program or new freshman with a pre-pharm major. I use my CSRDE datasets to establish the cohorts in in Brian’s file. Brian, I leave it up to you to decide whether to omit this record. See attached for details.

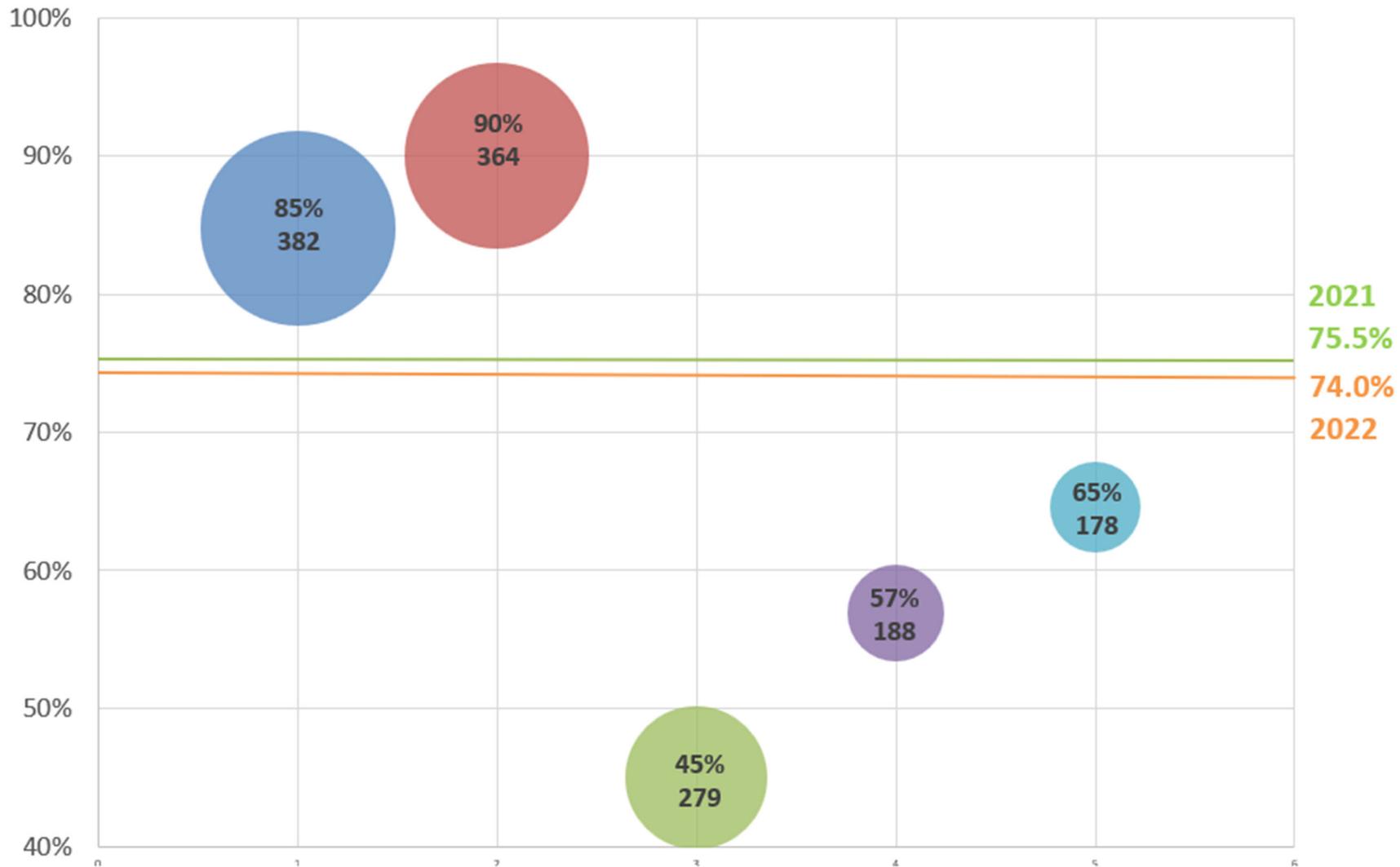
From,
IR Office”

- Additional Discrepancies were identified with Cohort starts across reporting, and were not addressed, but were documented [here](#).
- Montana Race/Ethnicity was not provided for the Fall 2022 entering cohort, and so has not attempted to be duplicated. Additional analysis has shown that Montana Race is calculated differently across different datasets, see more detail [here](#), and so no attempt was made to determine another way to measure Montana Race to keep all entries consistent.
- 139 students from the Fall 2022 cohort have Institutional GPAs from terms prior to Fall 2022, which is strange, because this should be a First-Time Cohort. This was discovered when trying to look into the attempted credits of students in the Fall 2022 cohort, and discovering a lack of that information in shrtgpa. Query and output are stored in excel document for investigation.
- College information is based on SGDSTDN_COLL_CDE_1, not SORLCUR like EDIFY and Register are advising to use to properly capture double majors. Queries provided for both ways of looking at data in excel.
- First Generation counts for Fall 2020 and Fall 2019 did not match official counts from IR office for logistic regression, but notes show same logic (Spbers_Lgcy_Code = N). Example 2019 Cohort this report shows 490, official census shows 496.

- [Federal Unmet need](#) is calculated by taking the total cost to the student after scholarships, grants, and workstudy, and is calculated for all students regardless of their filing of a FAFSA. It is a good way to understand the cost of college, and helps us understand beyond Pell Eligibility how cost is effecting retention. In our analysis of these cohorts, financial aid flagged that full pay students do not get a COA, and since this metric is COA – (AID+EFC), that would mean those fullpay students would have a 0 for Federal Unmet Need. This should not have any impact in our assessment of students with > 0 unmet need, but if analysis with this metric continues, updating COA may be helpful.
- Additional Discussion with Financial Aid in Sept of 2022 identified that not all students receive a COA, and the vast majority of them are not provided any AID either, as they are full pay students. Investigation into the COA = 0 students indicated that this may be altering the counts of our analysis, but that the counts effected will only be those with either 0 Federal Unmet need, or <0 Federal Unmet need. Since these are not significant populations where we are making recommendations, we continued our analysis with the data as is. Financial Aid informed us that the cleanup would be manual, and there would be most likely be between 80 and 100 per cohort, which would be over 500 records to update.
- No Information was found for 52 students related to 1st term attempted credits - Students in each cohort when pulling 1st term information were missing from SHRTGPA. This could have been because of academic dismissal or failed classes, or late withdrawl. Query and Sheet is included in the excel file.
- [First Generation](#) - Between Fall 2020 to Fall 2021 there was a significant increase in the number of students answered “Unsure” on the question about First Generation, which appears to have made the total number of First-Generation students drop dramatically, but is in fact simply an example of the introduction of bad data. This Table is included with a note to this effect, but no action should be taken until this data can be clarified.
- Statistical Significance for Low Income was defined as EFC >7000\$, to future proof the analysis, which was different from the individual variable analysis for Pell Eligible which was done at 6206, the current level for Financial Aid Year 2023.
- When doing academic dismissal analysis, this student appeared to have been put on probation before they began attending 790829567, 790838040, 790835198, 790834856, 790904532, 790890403, 790902617, 790893287

Appendix D: Large Population Visuals from Quadrant Analysis

Populations Driving Retention for the Fall 2021 Cohort



Area	Variables	Action
Large Populations with Higher Retention Rates	<ul style="list-style-type: none"> <li data-bbox="537 305 930 336">■ High Income (Unmet need <0) <li data-bbox="537 365 863 396">■ First Term GPA 3.5-3.99 	Ensure this Group Continues to Drive Retention
Large Populations with Lower Retention Rates	<ul style="list-style-type: none"> <li data-bbox="537 459 821 490">■ First Term GPA <2.5 <li data-bbox="537 519 961 550">■ Low Income (Unmet Need >10K) <li data-bbox="537 579 961 610">■ Non-Resident Non WUE Student 	Pursue Structural Changes to Alleviate Barriers

**This analysis takes each of these populations individually, so students in the High Income group may be in the First Term GPA <2.5 group. Multiple student group analysis is done later in the discussion of each individual variable.*