

2021-2022 Academic Progress Checks Assessment Report

Prepared by Loren Baranko Faught and Erika Beseler Thompson

MSUM Academic Success Center

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The Advising and Early Alert System is MSUM's early intervention system used to support student success and retention via proactively identifying and intervening with academically at-risk students. One form of early intervention within the system is Academic Progress Checks, which are a snapshot of student performance in each of their classes at weeks 5 and 10 each fall and spring semester. Following the collection of student progress data at each iteration, support staff review each student individually to note any deficient progress checks for follow up. Deficient progress checks are identified as grades of D or F, indicated attendance concerns, marked as high risk by the faculty member submitting the progress check, and/or comments indicating concern for the student and their course progress. Students with deficient progress checks receive outreach from support staff within 1-2 business days. A minimum of two outreach attempts are made via email and phone and follow-up attempts are documented within the Advising and Early Alert System. Upon closing a student's academic progress check, staff note intervention resolutions in the system as one of three options: 'student non-responsive', 'student referred for additional assistance', or 'concern discussed/guidance provided.'

Data were collected to determine the efficacy of academic progress checks in predicting student retention, as well as identifying the effect of the intervention on student retention. Assessment data included the percentage of deficient progress checks (Deficiency Percentage) for each student at week 5 and week 10 for both Fall 2021 and Spring 2022 iterations, student demographics (class year, Pell eligibility, first generation status, race/ethnicity, international/domestic status), and retention and academic progress data for each semester for all degree-seeking undergraduate students at MSUM. Graduate students were removed from the dataset due to differences in how academic deficiencies are defined and addressed for that population of students. This data set was selected due to the consistently high academic progress check completion rates (~90% across all iterations) and the consistent use of intervention resolution reasons for progress check closures.

Executive Summary

- Male students, first generation students, Pell-eligible students, students of color, and freshmen all had significantly higher deficiency percentages at weeks 5 and 10 of both fall and spring semesters.
- Week 5 and week 10 deficiency percentages are the strongest individual predictors of fall-to-spring retention in a model controlling for student demographic factors, indicating progress checks are useful for identifying students at risk for attrition, above and beyond current key indicators.
- Students with higher deficiency percentages are likely in need of more intensive intervention and support mechanisms given the risk of attrition rises significantly alongside deficiency percentage.
- Students responded to outreach at the highest rates during Fall week 5 (55.8% responsive), with declining rates of responsiveness thereafter. Male students responded at significantly lower rates than female students. No significant differences were found in responsiveness based on first generation status, Pell eligibility, race/ethnicity, residency (international/domestic), or class year.
- Fall week 5 responsiveness was associated with significantly lower rates of deficiency at fall week 10, indicating week 5 in fall is a critical opportunity for proactive outreach and intervention.
- Students who are not responsive to outreach have significantly lower rates of retention, indicating a need for more focus on students who are non-responsive in addition to future research on the direct impact of intervention.

Overall Findings

The following sections provide detailed findings of analyses regarding academic progress check deficiency percentage rates and the relationship between deficiency percentages and retention, as well as rates of responsiveness to outreach and the relationship between responsiveness and retention.

Deficiency Percentage by Population

Deficiency percentage was calculated by dividing the total number of deficient courses by the total number of courses in which the student was enrolled at the time of each progress check iteration. Deficient courses were identified as grades of D or F, indicated attendance concerns, marked as high risk by the faculty member, and/or comments indicating concern for the student and their course progress.

The overall mean deficiencies for the populations was .0939 for Fall 2021 week 5, .1014 for Fall 2021 week 10, .0982 for Spring 2022 week 5, and .1055 for Spring 2022 week 10, meaning the average percentage of deficient courses for the MSUM undergraduate student population was 9.39%, 10.14%, 9.82%, and 10.55%, respectively.

Independent-samples t-tests were conducted to determine whether there are differences in deficiency percentages at weeks 5 and 10 in both fall and spring between female and male students, white students and students of color (domestic students who self-identify as one or more of the following races and/or ethnicities: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latinx, Native Hawaiian or Other Pacific Islander), domestic and international students, first generation and continuing generation students, and Pell-eligible and non-Pell eligible students. A one-way analysis of variance was conducted to determine whether there are differences in deficiency percentage between class years. Table 1 presents a summary of the T-test and One-way Analysis of Variance findings.

Table 1. T-test and One-way Analysis of Variance Results for Deficiency Percentage by Demographics

	Week 5 Fall 2021	Week 10 Fall 2021	Week 5 Spring 2022	Week 10 Spring 2022
Overall	9.39%	10.14%	9.82%	10.55%
Gender				
Female	7.73%*	8.89%*	8.82%*	9.49%*
Male	12.17%*	12.21%*	11.45%*	12.27%*
Race				
Students of Color	15.12%*	16.49%*	15.84%	15.11%*
White Students	8.2%*	8.94%*	8.54%*	9.56%*
Residency				
Domestic	9.28%	10.09%	9.76%	10.46%
International	12.27%	11.47%	11.2%	13.05%
First Generation Status				
First Generation	10.09%*	11.05%*	11.03%*	11.68%*
Continuing Generation	8.72%*	9.4%*	8.96%*	9.65%*
Pell Eligibility				
Pell Eligible	12.55%*	13.43%*	13.41%*	14.23%*
Non-Pell Eligible	7.99%*	8.68%*	8.15%*	8.85%*
Class Year				
Freshmen	16.38%*	16.93%*	25.84%*	29.17%*
Sophomore	10.98%*	13.27%*	12.37%*	14.7%*
Junior	9.42%	9.78%	9.57%*	10.87%*
Senior	7.14%	7.57%	7.62%*	7.21%
Previous Degree	5.79%	6.99%	5.0%*	7.62%

* significant difference exists (details provided in narrative)

Gender

The results indicate there was a significant difference in deficiency percentage between male and female students, with males having a significantly higher percentage of deficient courses across all iterations ($p < .001$), though the effect size was small for each iteration. The percentage of deficiencies for male students ranged from 11.45% to 12.27%, while deficiencies for female students ranged from 7.73% to 9.49%.

Race

The results indicate there was a significant difference in deficiency percentage between students of color and white students, with students of color having a significantly higher percentage of deficient courses across all iterations ($p < .001$), though the effect size was small for all iterations. The percentage of deficiencies for white students ranged from 8.2% to 9.56% while deficiencies for students of color ranged from 15.11% to 16.49%.

Residency

The results indicate there was no significant difference in deficiency percentage between domestic and international students across any iteration.

First Generation and Continuing Generation Students

The results indicate there was a significant difference in deficiency percentage between first generation and continuing generation students, with first generation students having a significantly higher percentage of deficient courses across all iterations ($p < .05$), though the effect size was small for each iteration. The percentage of deficiencies for continuing generation students ranged from 8.72% to 9.65% while deficiencies for first generation students ranged from 10.09% to 11.68%.

Pell Eligibility

The results indicate there was a significant difference in deficiency percentage between Pell eligible and non-Pell eligible students, with Pell eligible students having a significantly higher percentage of deficient courses across all iterations ($p < .001$), though the effect size was small for each iteration. The percentage of deficiencies for Pell eligible students ranged from 12.55% to 14.23% while deficiencies for non-Pell eligible students ranged from 7.99% to 8.85%.

Class Year

A one-way between-groups analysis of variance was conducted to explore the relationship between class year and deficiency percentage. Students were classified in five groups: freshmen, sophomore, junior, senior, and previous degree. There was a significant difference ($p < .001$) in the deficiency percentage for freshmen compared to all other class years, and sophomores compared to seniors across all iterations. Additional details regarding significant differences among class years are available upon request. Notably, deficiency percentage is highest among freshmen, with a peak average deficiency rate of 29.17% in spring week 10 and declines with each subsequent class year.

Deficiency Percentage and Retention

An Independent-samples t-test was conducted to determine whether there are differences in deficiency percentages between students who were retained from Fall 2021 to Spring 2022 and those who were not. The results indicate there was a significant difference in deficiency percentage ($p < .001$), with students who were not retained to Spring 2022 having a significantly higher deficiency percentage at both week 5 and week 10 progress checks in Fall 2021, as illustrated in Table 2 below.

Table 2. T-test Results for Academic Progress Checks Deficiency Percentage by Fall to Spring Retention Status

Iteration	Retained to Spring	N	Mean Deficiency Percentage
Week 5 – Fall 2021	No	330	27.13%*
	Yes	3401	7.66%*
Week 10 – Fall 2021	No	320	32.4%*
	Yes	3402	8.04%*

*significant difference exists (see narrative above)

Predictors of Fall-to-Spring Retention

Direct logistic regression was performed to assess the impact of a number of factors on the likelihood that students would be retained from fall to spring. The model contained seven independent variables (class year, race/ethnicity, first generation status, Pell eligibility, gender, Fall week 5 deficiency percentage, and Fall week 10 deficiency percentage). The full model containing all predictors was statistically significant ($p < .001$), indicating the model was able to distinguish between students who were and were not retained. The model as a whole explained between 8.5% (Cox and Snell R square) and 19.3% (Nagelkerke R square) of the variance in retention, and correctly predicts 12.5% of students who were not retained. As shown in Table 3, several of the independent variables made a unique statistically significant contribution to the model, including first generation status, Pell eligibility, Fall week 5 deficiency percentage, Fall week 10 deficiency percentage, and class year (freshmen, sophomore, junior, and senior). The strongest individual predictor of fall to spring retention was Fall week 10 deficiency percentage, recording an odds ratio of 8.47. This indicated that, holding all other predictor variables constant, students who had a higher percent deficiency of enrolled courses were over eight times more likely not to be retained, controlling for all other factors in the model. The second strongest predictor of fall to spring retention was Fall week 5 deficiency percentage, recording an odds ratio of 6.25, which indicated students who had a higher percentage deficiency of enrolled courses were over 6 times more likely not to be retained, controlling for all other factors in the model.

Table 3. Logistic Regression Results Predicting Likelihood of Fall to Spring Retention

	B	S.E.	Wald	df	p	Odds Ratio	95% Confidence Interval for Odds Ratio	
							Lower	Upper
Gender	-.037	.136	.072	1	.788	.964	.738	1.259
Race	.303	.188	2.600	1	.107	1.353	.937	1.955
First_Gen_Fed	-.492	.137	12.919	1	<.001	.612	.468	.800
Pell Eligibility	.311	.153	4.114	1	.043	1.365	1.011	1.844
Deficiency % – wk 5 2021	-1.832	.333	30.332	1	<.001	.160	.083	.307
Deficiency % – wk 10 2021	-2.140	.285	56.490	1	<.001	.118	.067	.206
Freshmen			38.620	4	<.001			
Sophomore	.675	.210	10.341	1	.001	1.964	1.302	2.964
Junior	.448	.193	5.382	1	.020	1.564	1.072	2.283
Senior	1.090	.187	33.936	1	<.001	2.975	2.062	4.293
Previous Degree	.043	.372	.013	1	.908	1.044	.503	2.165
Constant	2.483	.193	165.944	1	<.001	11.982		

Outreach and Closure Process and Student Responsiveness

After each Academic Progress Check iteration closes, progress checks are released in the Advising and Early Alert System to assigned staff members for follow-up. Progress checks are assigned to Student Relations Coordinators for students from their respective colleges and Academic Success Center staff for non-degree seeking and undeclared students.

Prior to follow-up, progress checks are filtered based on whether a student has any deficiencies and therefore needs outreach. Students with deficient progress checks are 'flagged' and all others are closed and marked as 'complete'. Once progress checks are filtered, outreach and subsequent intervention begins. A minimum of two outreach attempts are made via email and phone (calls or text messages) and documented as a note within the individual student's progress check in the Advising and Early Alert System. Students with three or more deficiencies receive prioritized outreach within one business day and all others within two to three business days for the first round of outreach. Non-responsive students receive a second round of outreach and those with a higher number of deficiencies are again prioritized within an additional business day and all others within an additional two to three business days. Week 5 progress checks without a resolution are kept open until the week prior to the week 10 iteration starting, and week 10 progress checks are left open until the day after the withdrawal deadline for full semester classes to allow for documentation in the instance a student chooses to respond to one of the outreach attempts.

Prior to closing progress checks, intervention resolutions must be noted in the system in one of three ways:

- 'student non-responsive': when a student has not responded after at least 2 outreach attempts
- 'student referred for additional assistance': when a student is connected to support service or staff member, e.g. Dean of Students Office
- 'concern discussed/guidance provided': when a student has responded to outreach and the assigned staff member has provided resources and guidance on next steps, e.g. connecting with professor or attending tutoring sessions

For this analysis, responsiveness was coded as follows:

- Responsive – 'student referred for additional assistance' or 'concern discussed/guidance provided'
- Non-Responsive – 'student non-responsive'

Note: Data from students enrolled in the College of Business, Analytics & Communication was not included in this portion of the analysis due to inconsistencies in the use of closure reasons.

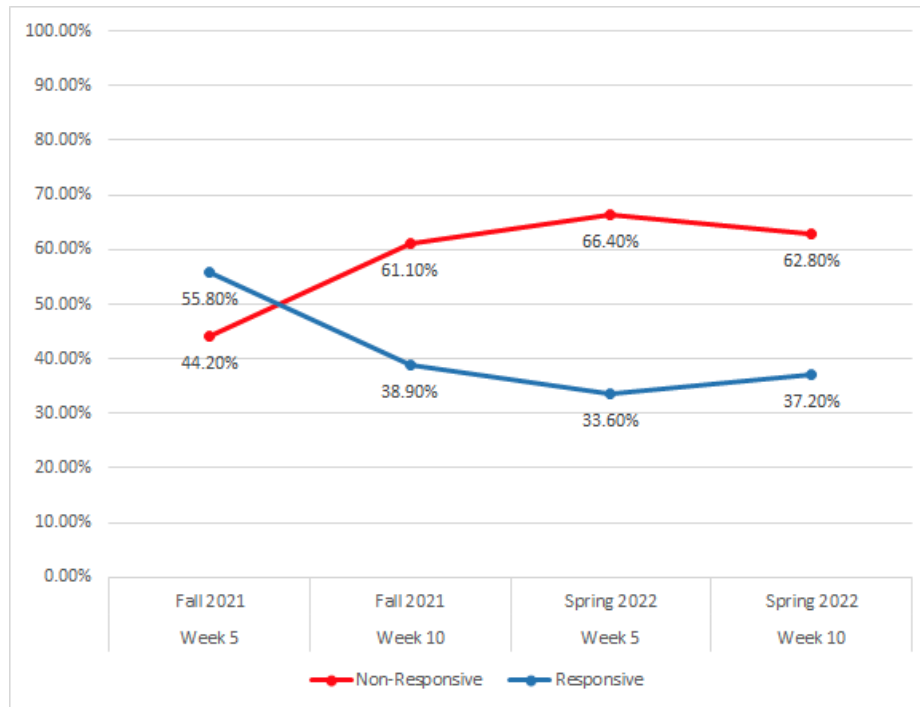
Responsiveness Frequencies

The following table and chart provide an overview of the percentage and number of students with one or more deficiencies who were responsive to outreach across all APC iterations. Student responsiveness to outreach peaked at 55.8% after Fall week 5 progress checks with lower rates observed thereafter. The lowest level of responsiveness was seen after Spring week 5.

Table 4. Frequencies of Student Responsiveness to Outreach in Fall 2021 and Spring 2022

Responsiveness	Week 5 Fall 2021 % (N)	Week 10 Fall 2021 % (N)	Week 5 Spring 2022 % (N)	Week 10 Spring 2022 % (N)
Non-Responsive	44.2% (264)	61.1% (359)	66.4% (355)	62.8% (317)
Responsive	55.8% (333)	38.9% (229)	33.6% (180)	37.2% (188)
Total	100% (597)	100% (588)	100% (535)	100% (505)

Chart 1. Frequencies of Student Responsiveness to Outreach in Fall 2021 and Spring 2022



Responsiveness by Population

Chi-square tests for independence (with Yates’ Continuity Correction) were conducted to determine if significant associations exist between student responsiveness and demographics. Results indicated a significant association exists between gender and responsiveness, $\chi^2(1, n = 596) = 7.75, p = .005, phi = .004$ with males being less responsive to outreach across all iterations. Male rates of responsiveness ranged from 48.5% to 27.5%, while female rates of responsiveness ranged from 60.4% to 37.0%. There was no significant association between responsiveness and race/ethnicity, first generation status, Pell-eligibility, or residency. Due to some class years not meeting the minimum cell count needed for analysis, association with class year was not analyzed.

Responsiveness and Deficiency Percentage

Independent samples t-tests were conducted to determine whether there are differences in deficiency percentage between students who were responsive to outreach and those who were not responsive. In Fall 2021, there was no significant difference in week 5 deficiency percentage between those who were responsive and those who were non-responsive to week 5 outreach. Similarly, there was no significant difference in week 10 deficiency percentage between those who were responsive and those who were non-responsive to week 10 outreach. Notably, however, a significant difference ($p < .01$) existed in week 10 deficiency percentage between those who were responsive at week 5 and those who were not. Students who were responsive at week 5 had a significantly lower deficiency percentage at week 10 than those who did not respond to outreach (26.05% vs 32.34%, respectively). See Table 5 for full results.

Table 5. T-test Results for Deficiency Percentage by Student Responsiveness in Fall 2021

Fall 2021 Iteration	Responsiveness	Week 5 Deficiency Percentage	Week 10 Deficiency Percentage
Week 5	Responsive	33.3	26.05*
	Non-Responsive	36.25	32.34*
Week 10	Responsive	N/A	38.23
	Non-Responsive	N/A	39.92

*significant difference exists (see narrative above)

In Spring 2022, there were no significant differences in week 5 or week 10 deficiency percentage between those who were responsive and those who were non-responsive after week 5. Students who were responsive after Spring week 10 had a significantly higher deficiency percentage (42.44%) than those who were not responsive (37.64%) ($p < .05$). This was not seen during any other iterations, suggesting students with higher deficiency percentages may be more responsive to support services after Spring week 10 given the proximity to the end of the academic year.

Responsiveness and Retention

Chi-square tests for independence (with Yates' Continuity Correction) were conducted to determine if significant associations exist between student responsiveness and fall to spring retention. Results indicated a significant association exists between responsiveness at Fall week 5 and fall to spring retention, $\chi^2(1, n = 597) = 4.12, p = .04, \phi = .09$. Students who were responsive to outreach at week 5 in the Fall 2021 semester were significantly more likely to be retained to the Spring 2022 semester than those who did not respond (58.0% vs 47.1%, respectively). There was no significant association between Fall week 10 responsiveness and fall to spring retention.

Discussion and Implications

Academic Progress Checks as an Equity Tool

Male students, first generation students, Pell-eligible students, students of color, and freshmen all had significantly higher deficiency percentages at weeks 5 and 10 of both fall and spring semesters than their counterparts, as noted on pages 2-3. While all of these gaps are concerning, of particular concern was the significant difference in deficiency percentage between students of color and white students, with students of color having nearly twice the deficiency rates as their white counterparts. This aligns with both national data regarding students of color receiving a disproportionate share of early alerts at many institutions, as well as MSUM data regarding equity gaps in both academic progress and retention. These results indicate that early intervention that results from academic progress checks can be a powerful tool for helping MSUM direct resources in a way that supports equitable outcomes. However, this will require additional focus on ensuring early intervention communication is crafted in a way that respects and supports student identities and experiences. Notably, there were no significant differences found in the responsiveness to outreach between Pell-eligible, first generation, and students of color and their counterparts. This is a promising finding as we continue to focus on early alert as a tool for advancing equity.

Academic Progress Checks as a Retention Predictor

The overall predictive capacity of Academic Progress Checks is limited in this study, by necessity, to academic influences on retention. As such, this analysis does not reveal the numerous non-academic reasons why a student may not be retained from fall to spring semester. The results do show, however, that both student deficiency percentages and responsiveness to outreach are significantly different for students who are retained versus those who are not, providing evidence that academic progress checks are an effective tool for early identification and intervention with students who are academically at risk for attrition.

The weight of deficiency percentages at both weeks 5 and 10 as the strongest individual predictors of retention further indicates that students with higher deficiency percentages are likely in need of more intensive intervention and support mechanisms, particularly at week 5 given the potential for changing academic and retention outcomes at that point. The timing and nature of the communication to this group of students should be evaluated to align with best practices and increase student engagement (further discussed below).

Academic Progress Checks and Early Intervention

A key element of early intervention is the ability to provide positive support to identified students. The results of this study indicate that students who were responsive to outreach were more likely to be retained to the following semester. Furthermore, students who were responsive to outreach after Fall week 5 had significantly lower deficiency percentages at Fall week 10. While we are not able to determine whether the intervention itself increased retention or decreased deficiency percentages, this does provide further critical insight into the need to meaningfully engage with and support those students who were non-responsive.

Low rates of responsiveness overall, as well as the concerning decrease in response rates over subsequent iterations, indicate that adjustments in outreach messaging and modalities may be beneficial. An area for further investigation is determining how we increase responsiveness and what ways we can be more effective in our intervention efforts, especially at week 5, to provide the students with the best possible chance at recovery early on in the semester. As one approach for increasing engagement, staff who are responsible for outreach are encouraged to implement rapport building communications prior to progress check outreach efforts, as well as adopt asset-based language in outreach emails and text messages.

Collectively, these results support the continuation of academic progress checks as both a retention and equity initiative, while also lending insight into areas for continuing to enhance the early intervention program.