Class Absence, GPA and Returning Next Semester

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Summary of Findings

- On average the 13,755 degree students in Fall 2012, Session I who took at least one college-level course were **marked absent for 15% of their college-level class meetings** (excluding days where attendance was not taken and excluding any class where 20% or more of the class days' attendance was not taken).

- On average the 5,392 degree students in Fall 2012, Session I who took at least one *non-college-level* course (i.e., developmental and freshmen seminar courses) were **marked absent for 20% of their non-college-level class meetings** (excluding days where attendance was not taken and excluding any class where 20% or more of the class days' attendance was not taken).

- Any student who missed more than 8% of his or her college-level class meetings (two or more classes out of 24 class meetings, for example) had only a 50-50 chance of getting a GPA for those classes of 2.00 or higher.

- For every ten percentage point increase in a student's absence rate, the average student's GPA for those courses falls more than half a grade (until the student reaches a 50% absence rate and the GPA can hardly fall any more).

- 100% attendance does not guarantee a 4.00, but it helps.

- Higher absence rates and lower GPA's both predict higher rates of non-return to the next semester, but higher absence rates are a stronger predictor. Both together in a logistic regression correctly predicted 79% of the time whether a student would or would not continue on from Fall 2011 Session I to Spring 2012. (Graduating at the end of Fall 2011 was counted as continuing).

- Very high GPAs and very low absence rates, however, do not guarantee that students will move on to the next semester. Approximately 14% of students with a GPA in college-level courses (where attendance was taken at least 80% of the time) above 3.50 did not continue on from Fall 2011 to Spring 2012. Also, approximately 14% of students who missed fewer than 2.5% of their college-level course class sessions did not continue on from Fall 2011 to Spring 2012.

Explanation of figures and tables

Figure 1 shows the distribution of absence rates for students in Fall 2012, session I. The distribution is for the 13,755 degree students who took at least one college-level class where the student showed that his or her attendance had been marked (attendance, absence, late, excused) more than 80% of the time (i.e., the number of days marked as non-recorded was less than or equal to 20%).

The absence rate scale ranges are, for example, "from 15% to less than 25%."

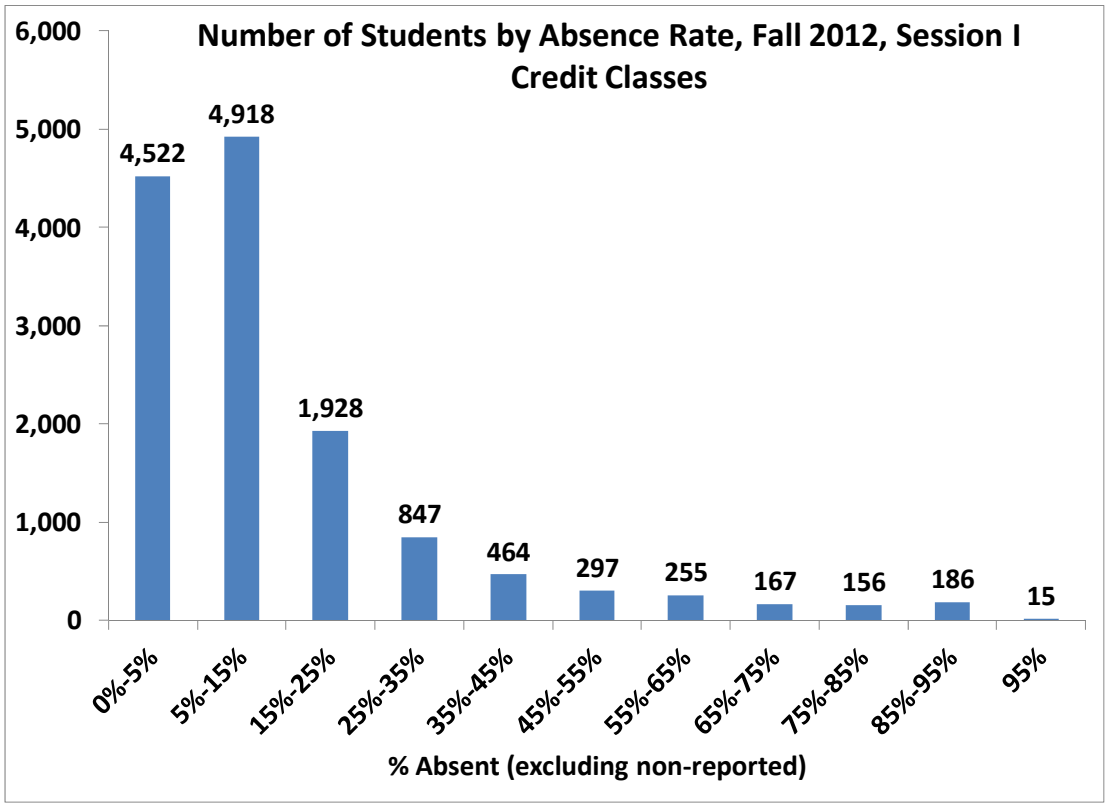

Figure 1

Figure 2 shows the decline in average GPA by students in each range of absence rates. In the lower part of the absence range (0% to less than 55%), a straight line fitted to the graph indicates that for each ten percentage point difference, GPA falls 0.57 on a 4.00 scale.

Grades and absences are only included for college-level courses in Fall 2012 session I for degree students with at least one college-level course where the student's attendance was marked at least 80% of the time. The GPA was calculated for each student by multiplying credits times the grade for each such course and averaging.

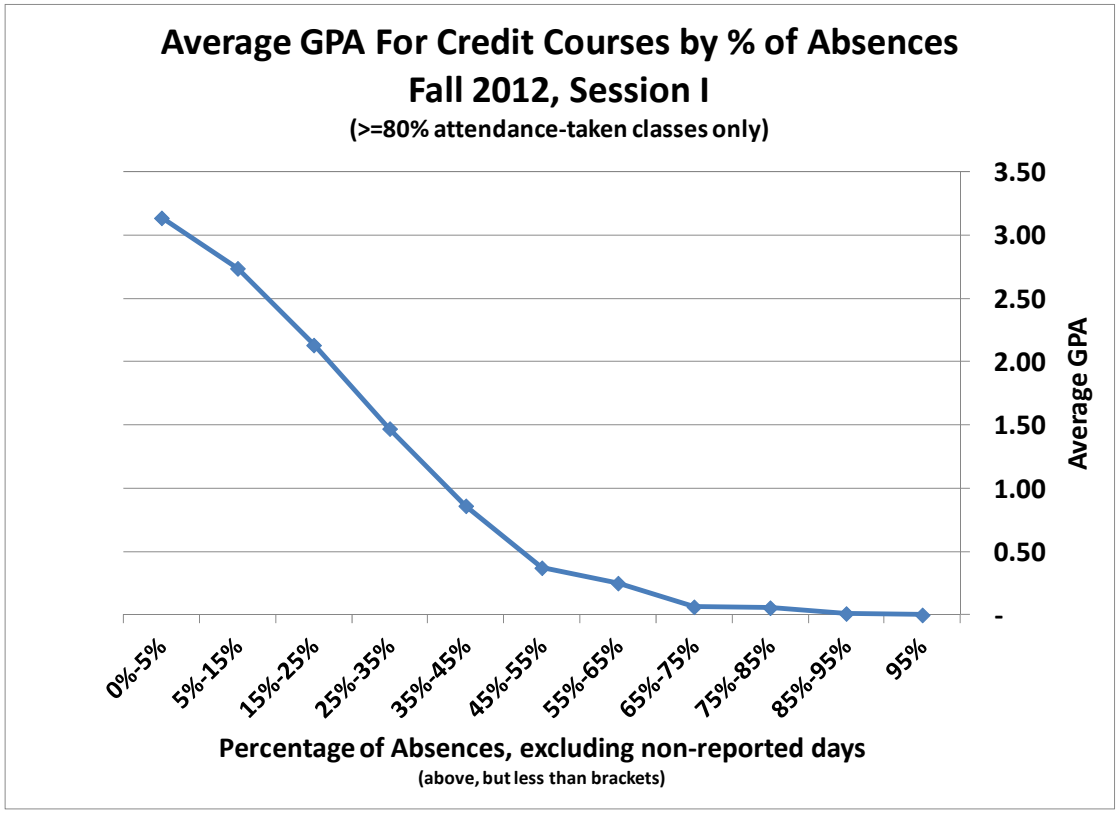

Figure 2

In Figure 3 the higher bars indicate high levels of absence by students in the groups. The redder the section of the bar, the lower the GPA. Pure red represents a group of students with GPA's between 0.00 and 0.25 GPA for college-level courses in Fall 2012, session I, where the student's attendance was recorded at least 80% of the time. Pure yellow represents average Fall 2012 session I college-level course GPA of between 3.75 and 4.00.

All students with the lowest attendance rate (highest absence rate and highest bar) had GPA's bellow 0.25. Very few (but a handful) of students with the highest attendance rates (lowest absence rate and lowest bar) had GPA's below 0.25.

The redness of the bars increases as absence goes up.

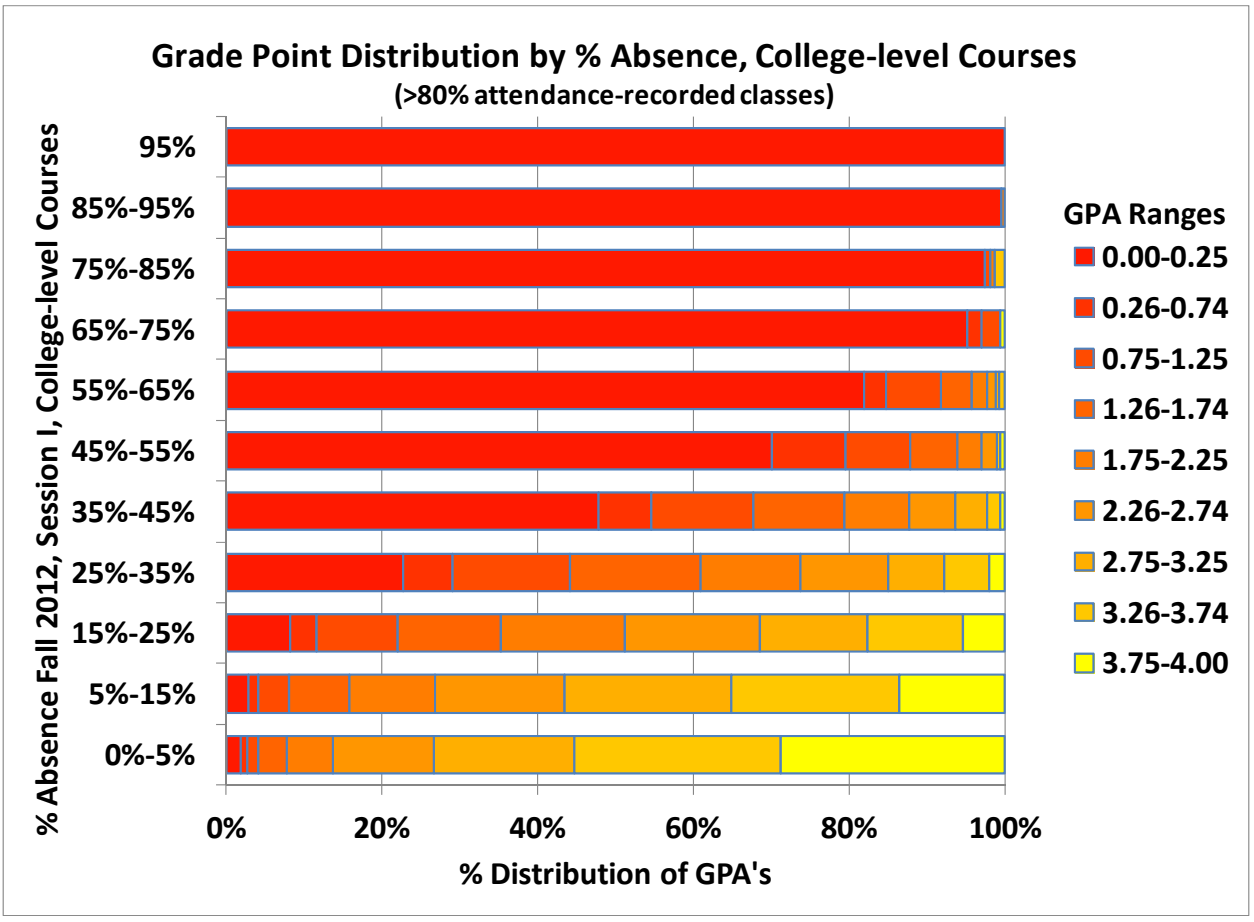

Figure 3

In Figure 4 we look at the relationship between absence rates and non-return rates to Spring 2013, as well as between GPA and non-return rates to Spring 2013. To do this we had to go back to the Fall 2011 session I attendance and grade records, using the same methodology we used for Fall 2012.

The higher the absence rate, the higher the non-return rate, and the lower the GPA, the higher the non-return rate.

The % absence rate increases faster and more steadily than the GPA curve. All increases in absence rate through 55% absent show a strong increase in the probability of not returning the next semester. Declines in the GPA, however, have a more gradual effect until the bracket around a GPA of 1.00. At that point the probability of not returning begins to increase very quickly as GPA falls.

Students who graduated after Fall 2011 were counted as continuing. Students who transferred before graduation and did not attend Spring 2012 were counted as not continuing.

The % non-returning is not equivalent to the drop-out rate. Normally about one-third of these students are stopping out and one-third are transferring to another college.

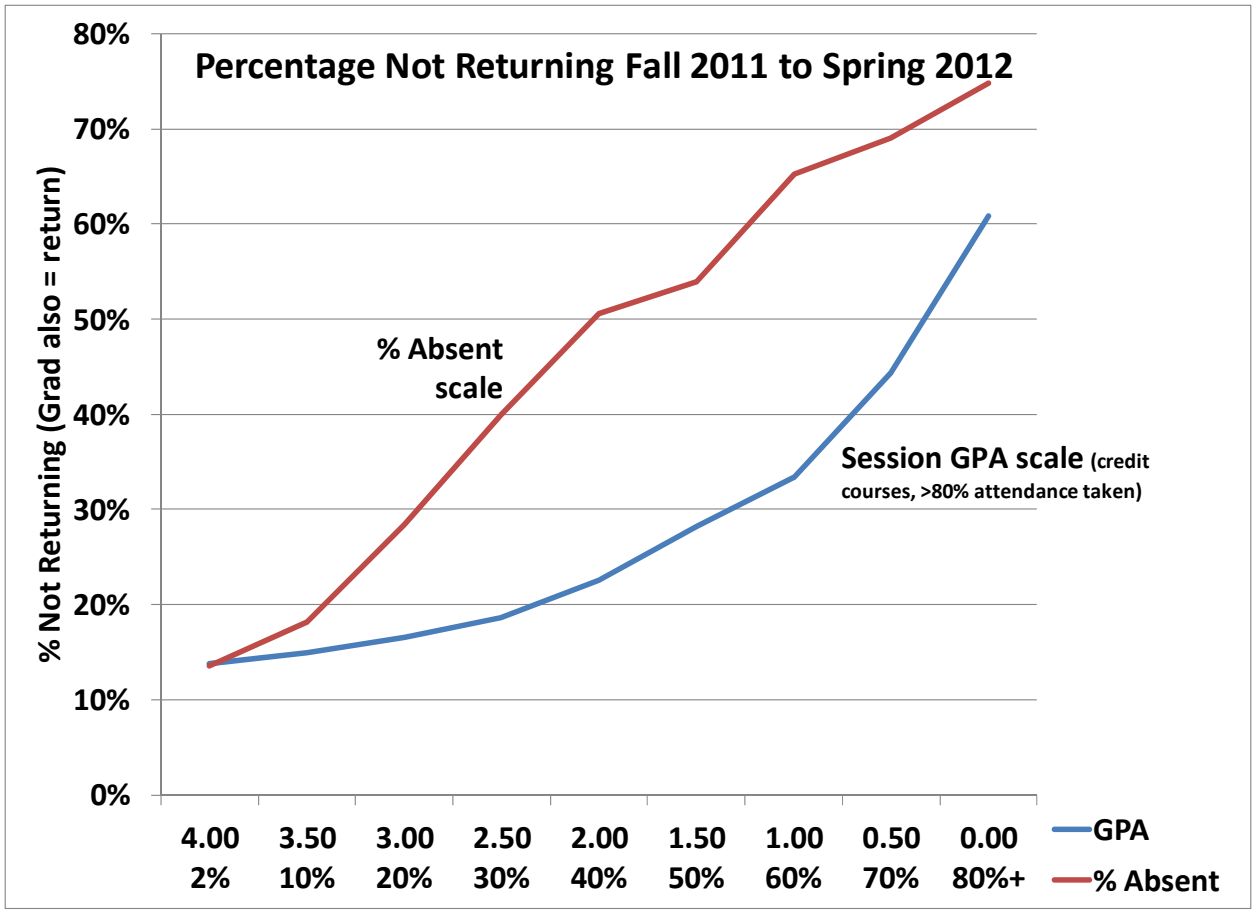

Figure 4

Figure 5 is a three-dimensional graph that demonstrates the interrelation of absence rates, GPA and % not returning. Higher "elevations" indicate higher rates of non-return. Clearly low GPA and high absence rate are closely, but not perfectly, related. The highest rate of non-return (red peak) is in the rear right corner with the group that had both the lowest GPA and highest absence rate.

The graph is uneven in the central area. This shows that GPA at higher levels of absence is less accurate as a predictor of whether or not a student will return.

Combined groups with fewer than 10 students are not shown.

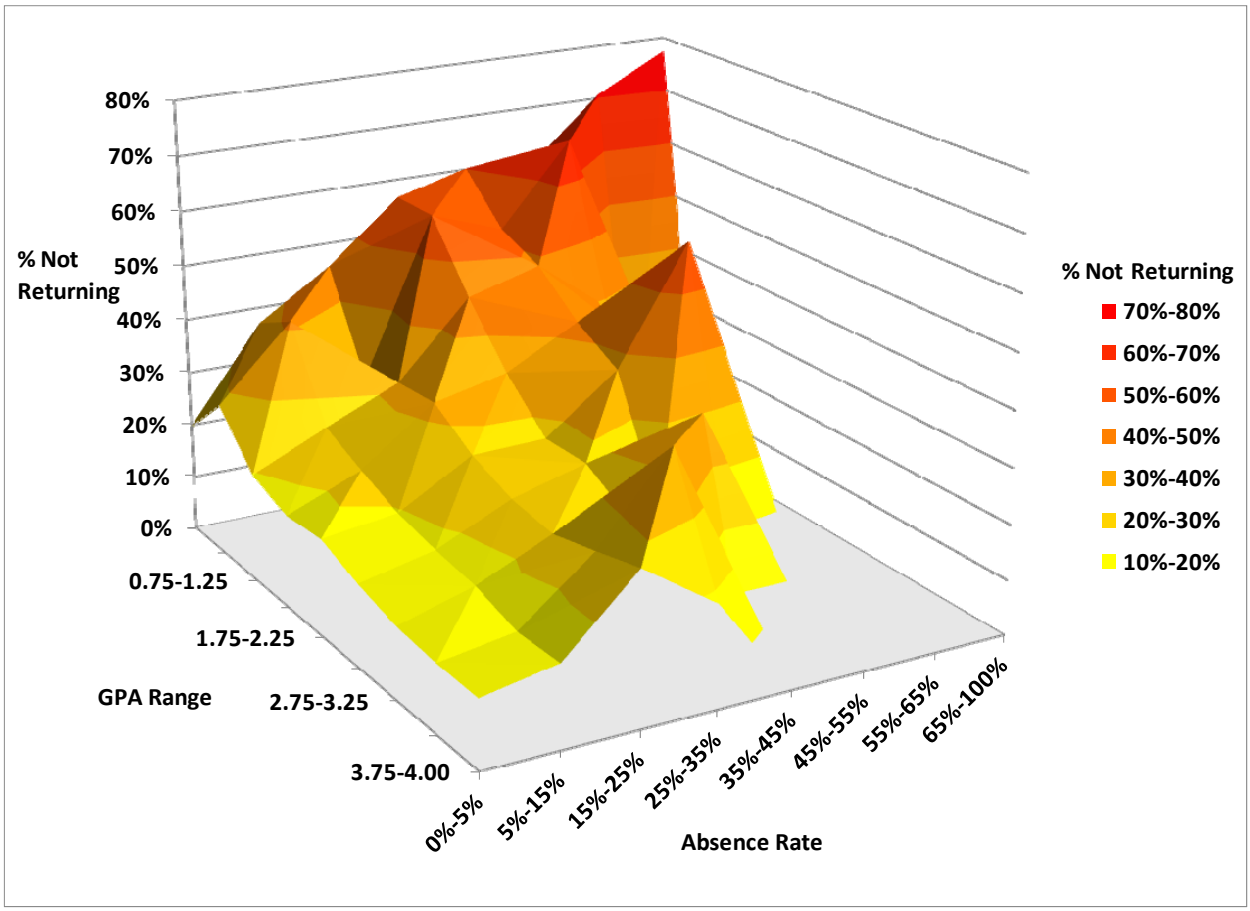

Figure 5

In Figure 6 we can learn something more about the ability of absent % and GPA to predict non-return. The blue bars show the number of students in the GPA brackets. They are reasonably well populated, except the range around 0.50 with a slight bulge at 3.50 and a larger bulge at 0.00. None of these GPAs were figured using zero-credit courses. (Thus, all developmental and freshman seminar courses were excluded, and thus, there were no "null" grades or GPAs.)

On the other hand, the number of students in the % absent brackets peaks sharply at the 5% to 15% bracket. Very few students are in the highest % absent brackets.

This means that, while absent % is a strong predictor of non-return at the high levels, fewer students are available in those brackets. We can be accurate about non-return with only a handful of students.

On the other hand, GPA is a less powerful predictor, but it is best at the low end of the GPA range. Here, there are relatively more students available. Thus, it is less powerful, but more broadly applicable.

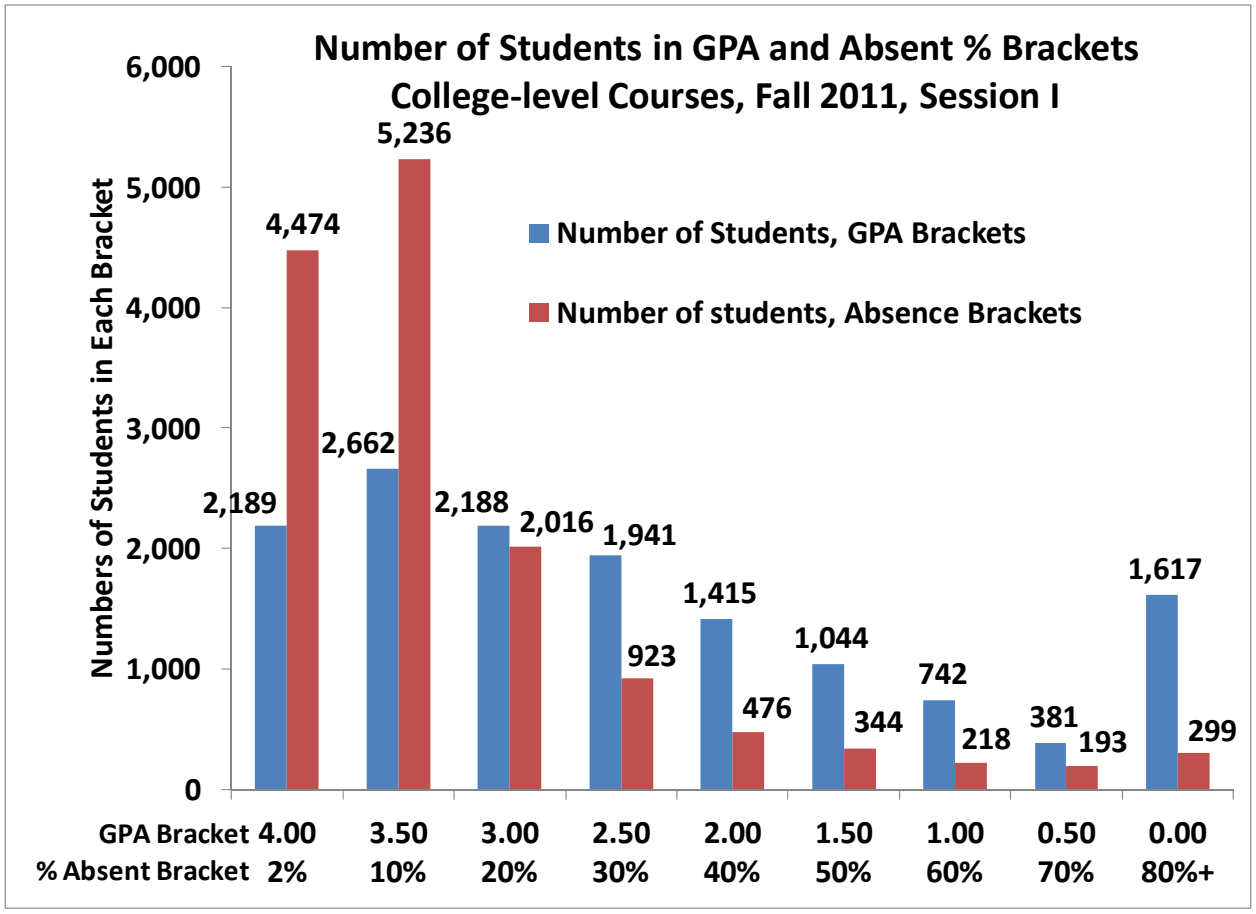

Figure 6

Logistic Regression

To test the power of both GPA and % absence, we used logistic regression. In Fall 2011 we found 14,179 degree students who had at least one college-level, graded course where attendance was taken at least 80% of the time.

We assigned a value of zero to those who did not register for classes in Spring 2012 and a value of 1 to those who either returned or graduated in Fall 2011. The numbers are shown in Table 1. 24.3% of the students did not return for Spring 2012.

Returned or graduated	10,738
Did not return	3,441

Table 1

The range of values for the absence percentage (AbsPct) was 0 to 1. The range of values for GPA was 0 to 4.

The classification table from SPSS is shown as Table 2 and demonstrates that the derived model predicts return/non-return correctly in 78.6% of the cases. The model is much less accurate at predicting non-return (correct 24.4% the time) than return (correct 95.9% of the time). Overall, most students return. We also noted in figure 4 that among students with even above a 3.75 GPA and a less than 5% absence rate had a probability of not returning of 14%. Many students who do not return, do not return for reasons beyond academic problems. Thus, academic metrics, like GPA and attendance (although attendance is at least partially a non-academic indicator of challenge) cannot perfectly predict who will leave.

Classification Table

Observed			Predicted		
			Returned		Percentage Correct
			No	Yes	
	Returned	No	840	2,601	24.4%
		Yes	438	1,0300	95.9%
	Overall Percentage				78.6%

Table 2

Table 3 gives the coefficients and constant of the exponential equation. Although the absence % improves the accuracy of the prediction, the GPA is a stronger factor in the equation as shown by its "Exp(B)" or coefficient impact in the exponential equation. This is a direct result of the more even population distribution through the GPA range.

Variables in the Equation

	B	S.E.	Wald	df	Significance	Exp(B)
AbsPct	-2.918	.152	366.601	1	.000	.054
GPA	.287	.022	177.226	1	.000	1.332
Constant	.985	.071	194.779	1	.000	2.679

Table 3

Class Absence, GPA and Returning Next Semester

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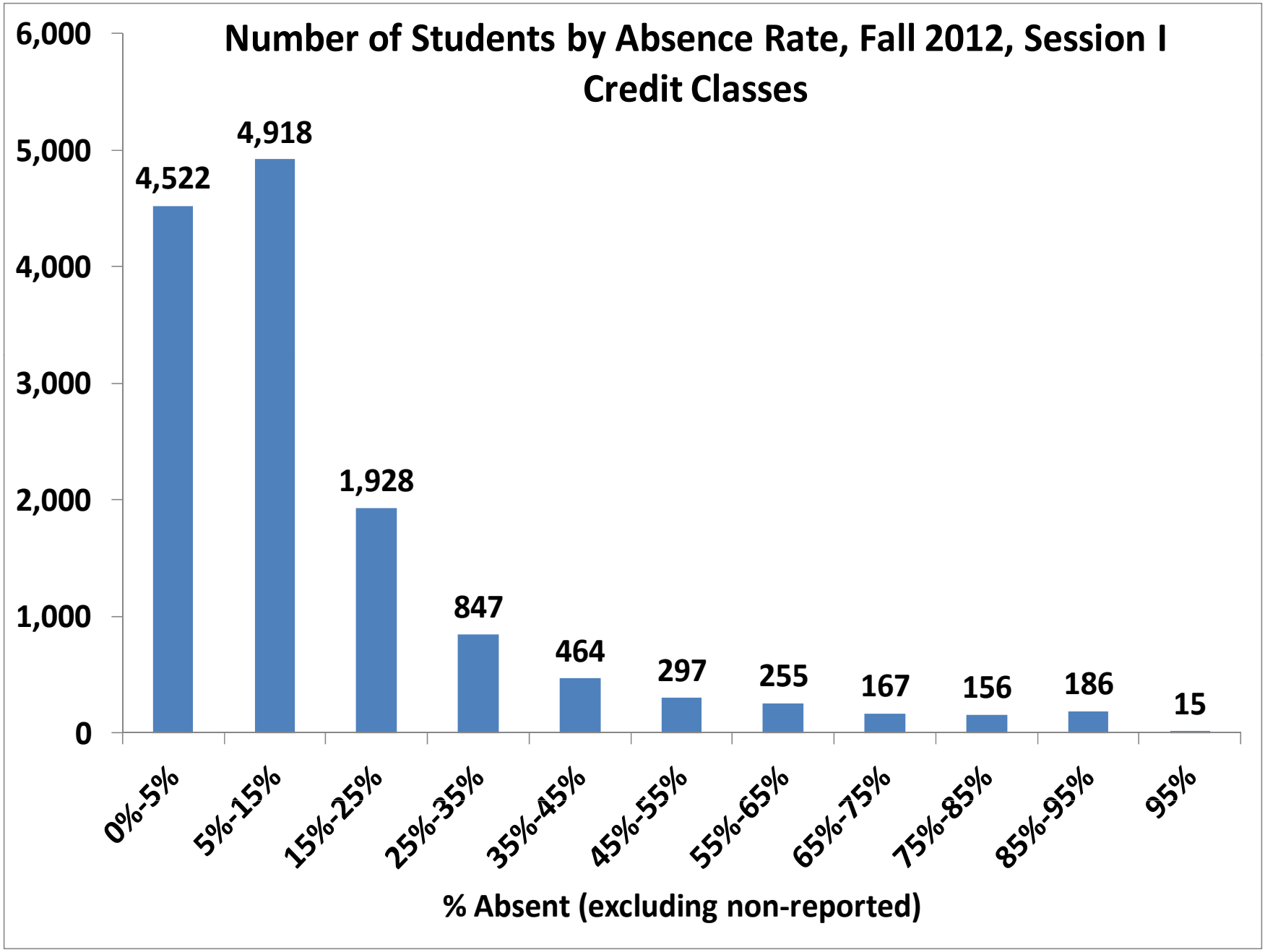
Fall 2012, Session Absence Rates

- On average the 13,755 degree students in Fall 2012, Session I were **marked absent for *15%* of their college-level class meetings.**
- On average the 5,392 degree students in Fall 2012, Session I were **marked absent for *20%* of their non-college-level class meetings**.

(Classes with 20% or more non-recorded attendance sessions were excluded. Non-recorded sessions were not included in % absent. Only students with at least one college-level course were included in the first statistic.)


Number of Students by Absence Rate, Fall 2012, Session I Credit Classes
6,000
5,000
4,000
3,000
2,000
1,000
0
4,522
4,918
1,928
847
464
297
255
167
156
186
15
0%-5%
5%-15%
15%-25%
25%-35%
35%-45%
45%-55%
55%-65%
65%-75%
75%-85%
85%-95%
95%
% Absent (excluding non-reported)

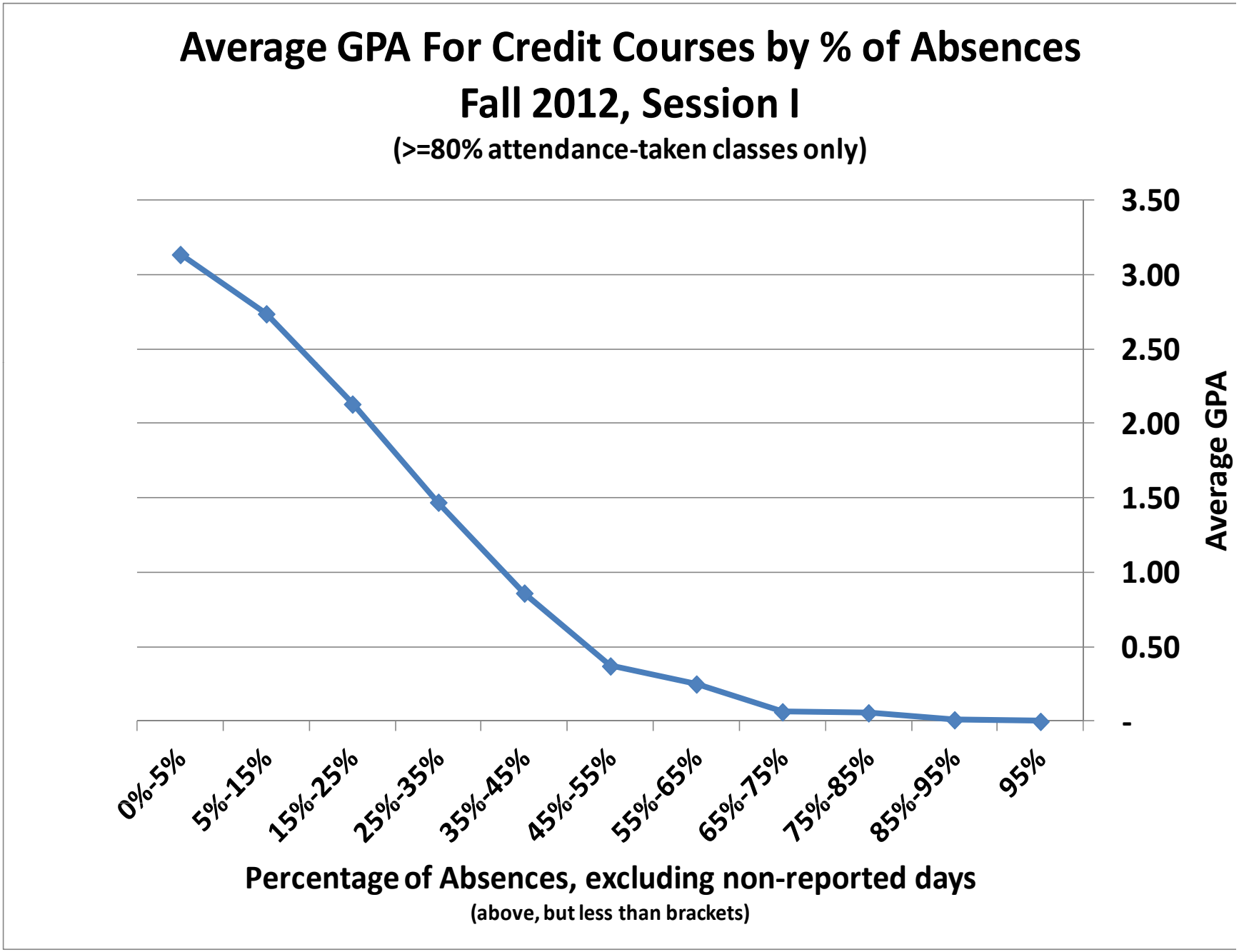
GPA and Attendance

- Any student who missed more than ***8%*** of his or her college-level class meetings (two or more classes out of 24 class meetings, for example) had only a ***50-50 chance*** of getting a GPA for those classes of ***2.00 or higher***.

- For every ***ten percentage point increase in a student's absence rate***, the average student's ***GPA*** for those courses ***falls more than half a grade*** (until the student reaches a 50% absence rate and the GPA can hardly fall any more).

- 100% attendance does not guarantee a 4.00, but it helps.

(GPA for college-level courses with >80% of sessions attendance recorded, Fall 2012, Session I.)


Average GPA For Credit Courses by % of Absences
Fall 2012, Session I
(>=80% attendance-taken classes only)
3.50
3.00
2.50
2.00
1.50
1.00
0.50
-
Average GPA
0%-5%
5%-15%
15%-25%
25%-35%
35%-45%
45%-55%
55%-65%
65%-75%
75%-85%
85%-95%
95%
Percentage of Absences, excluding non-reported days
(above, but less than brackets)

GPA and % Absence

- All students with the lowest attendance rate (highest absence rate and highest bar in the following figure) had GPA's bellow 0.25. Very few (but a handful) of students with the highest attendance rates (lowest absence rate and lowest bar) had GPA's below 0.25.

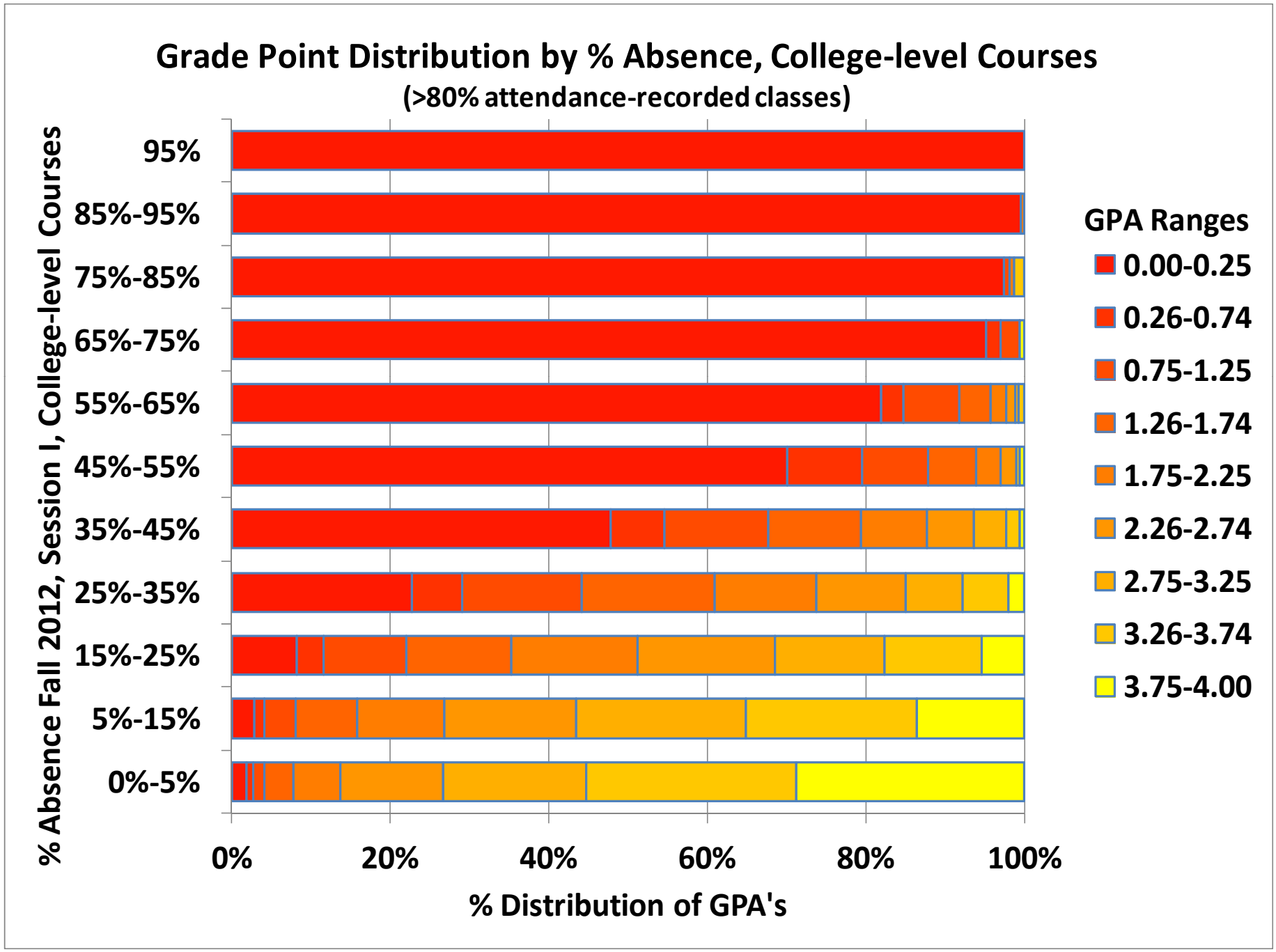
Key to following figure:

The higher bars indicate high levels of absence by students in the groups.

The redder the section of the bar, the lower the GPA.

Pure red represents a group of students with GPA's between 0.00 and 0.25 GPA for college-level courses in Fall 2012, session I, where the student's attendance was recorded at least 80% of the time.

Pure yellow represents average Fall 2012 session I college-level course GPA of between 3.75 and 4.00.


Grade Point Distribution by % Absence, College-level Courses
(>80% attendance-recorded classes)
% Absence Fall 2012, Session I, College-level Courses
95%
85%-95%
75%-85%
65%-75%
55%-65%
45%-55%
35%-45%
25%-35%
15%-25%
5%-15%
0%-5%
0%
20%
40%
60%
80%
100%
% Distribution of GPA's
GPA Ranges
0.00-0.25
0.26-0.74
0.75-1.25
1.26-1.74
1.75-2.25
2.26-2.74
2.75-3.25
3.26-3.74
3.75-4.00

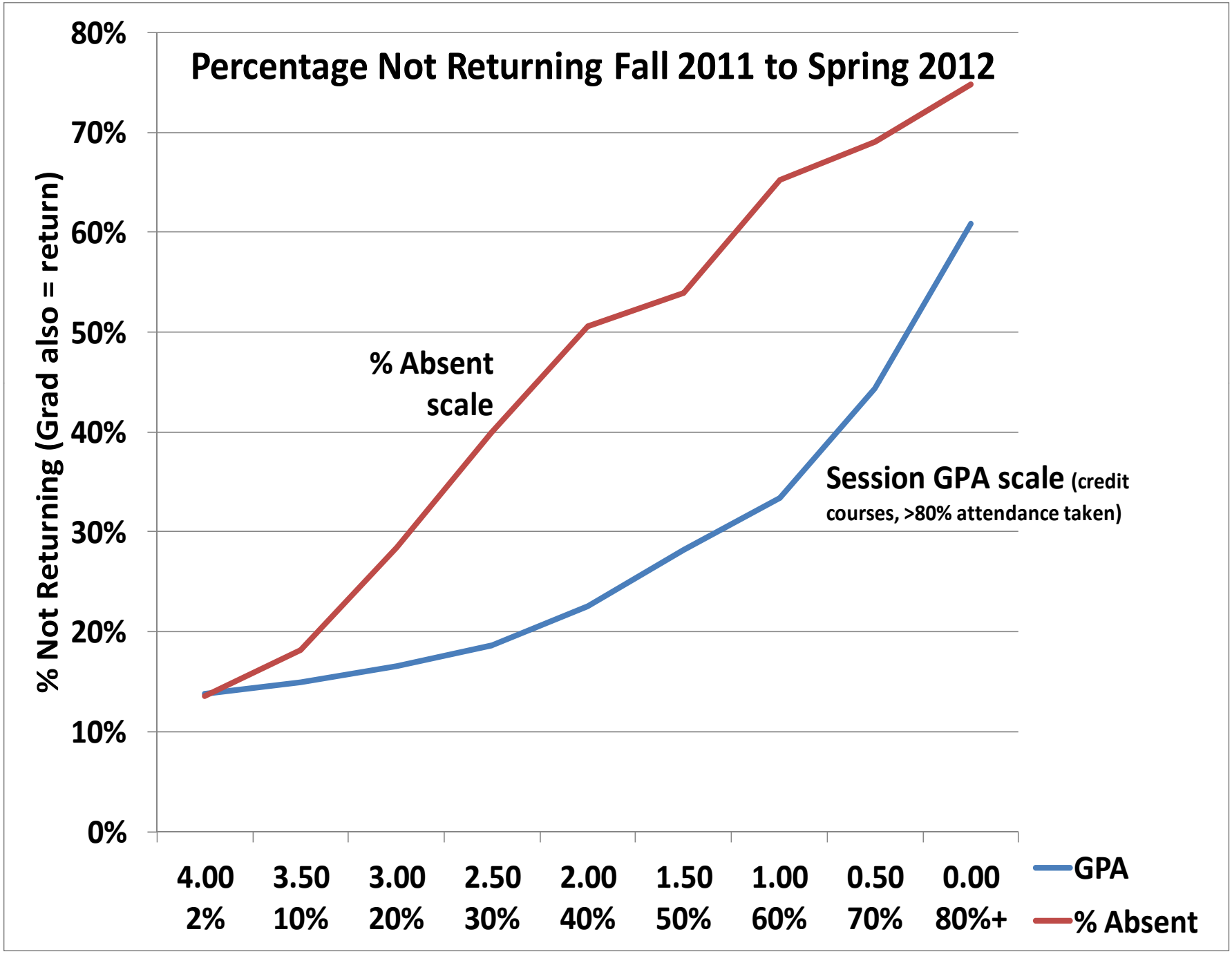
Class Attendance, GPA & Next Semester Return

- Higher absence rates and lower GPA's both predict higher rates of non-return to the next semester.
- But higher absence rates are a more sensitive predictor.
- Both together in a logistic regression correctly predicted 79% of the time whether a student would or would not continue on from Fall 2011 Session I to Spring 2012.

(Graduating at the end of Fall 2011 was counted as continuing).

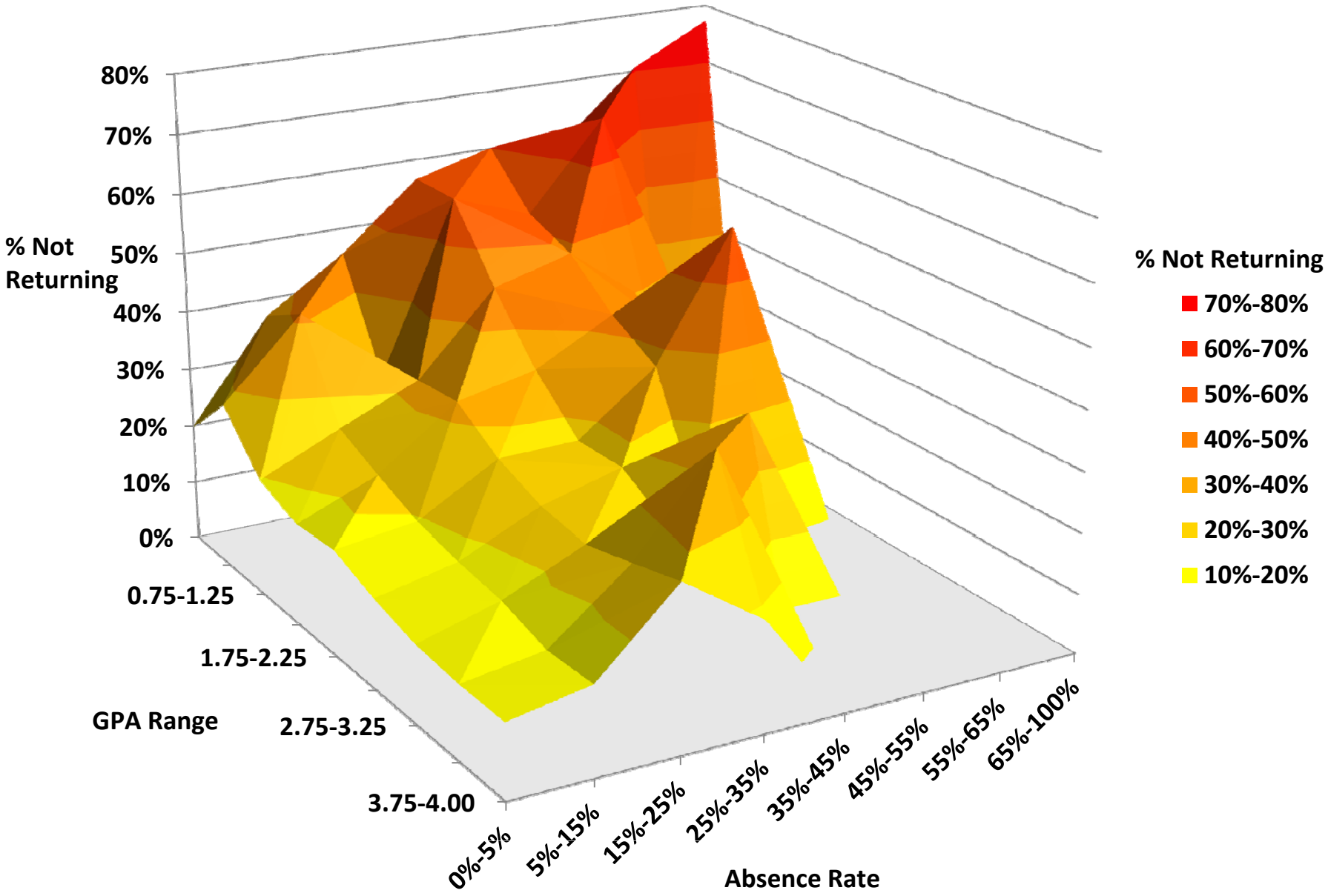
Class Attendance, GPA & Next Semester Return

- Very high GPA and very low absence rates, however, do not guarantee that students will move on to the next semester.
- Approximately 14% of students with a GPA in college-level courses above 3.50 did not continue on from Fall 2011 to Spring 2012.
- Also, approximately 14% of students who missed fewer than 2.5% of their college-level course class sessions did not continue on from Fall 2011 to Spring 2012.


Percentage Not Returning Fall 2011 to Spring 2012
% Not Returning (Grad also = return)
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Absent scale
Session GPA scale (credit courses, >80% attendance taken)
4.00 3.50 3.00 2.50 2.00 1.50 1.00 0.50 0.00
2% 10% 20% 30% 40% 50% 60% 70% 80%+
GPA
% Absent

Class Attendance, GPA & Next Semester Return

- Next is a three-dimensional graph that demonstrates the interrelation of absence rates, GPA and % not returning.
- Higher “elevations” indicate higher rates of non-return. Clearly low GPA and high absence rate are closely, but not perfectly, related.
- The highest rate of non-return (red peak) is in the rear right corner with the group that had both the lowest GPA and highest absence rate.
- The graph is uneven in the central area. This shows that GPA at higher levels of absence is less accurate as a predictor of whether or not a student will return.


% Not Returning
80%
70%
60%
50%
40%
30%
20%
10%
0%
GPA Range
0.75-1.25
1.75-2.25
2.75-3.25
3.75-4.00
0%-5%
5%-15%
15%-25%
25%-35%
35%-45%
45%-55%
55%-65%
65%-100%
Absence Rate
% Not Returning
70%-80%
60%-70%
50%-60%
40%-50%
30%-40%
20%-30%
10%-20%