



STUDENT RETENTION PREDICTOR™

Advanced Statistical Modeling to Increase
Persistence and College Completion

Part of the Retention Management System *Plus*™ from

RUFFALO™
NOEL LEVITZ

JUMP TO:

[Strategy](#)

[Student scores](#)

[Case examples](#)

Introducing the Student Retention Predictor

In today's higher education environment, the pressure is mounting to improve student retention and program completion rates on college campuses. In response, many campus leaders are looking for new and more effective answers to this vexing problem.

Enter the Student Retention Predictor. It begins with a complete, scientific analysis of persistence on your campus using advanced predictive modeling. Then, using these findings, it provides easy-to-use, custom risk ratings for each incoming student and cohort. You receive the scores near the beginning of classes or even before classes begin, allowing you to target interventions early and allocate resources where they will have the greatest impact.

This overview document introduces the capabilities of the Predictor and explains how it works as part of the Ruffalo Noel Levitz Retention Management System *Plus*.

Contents

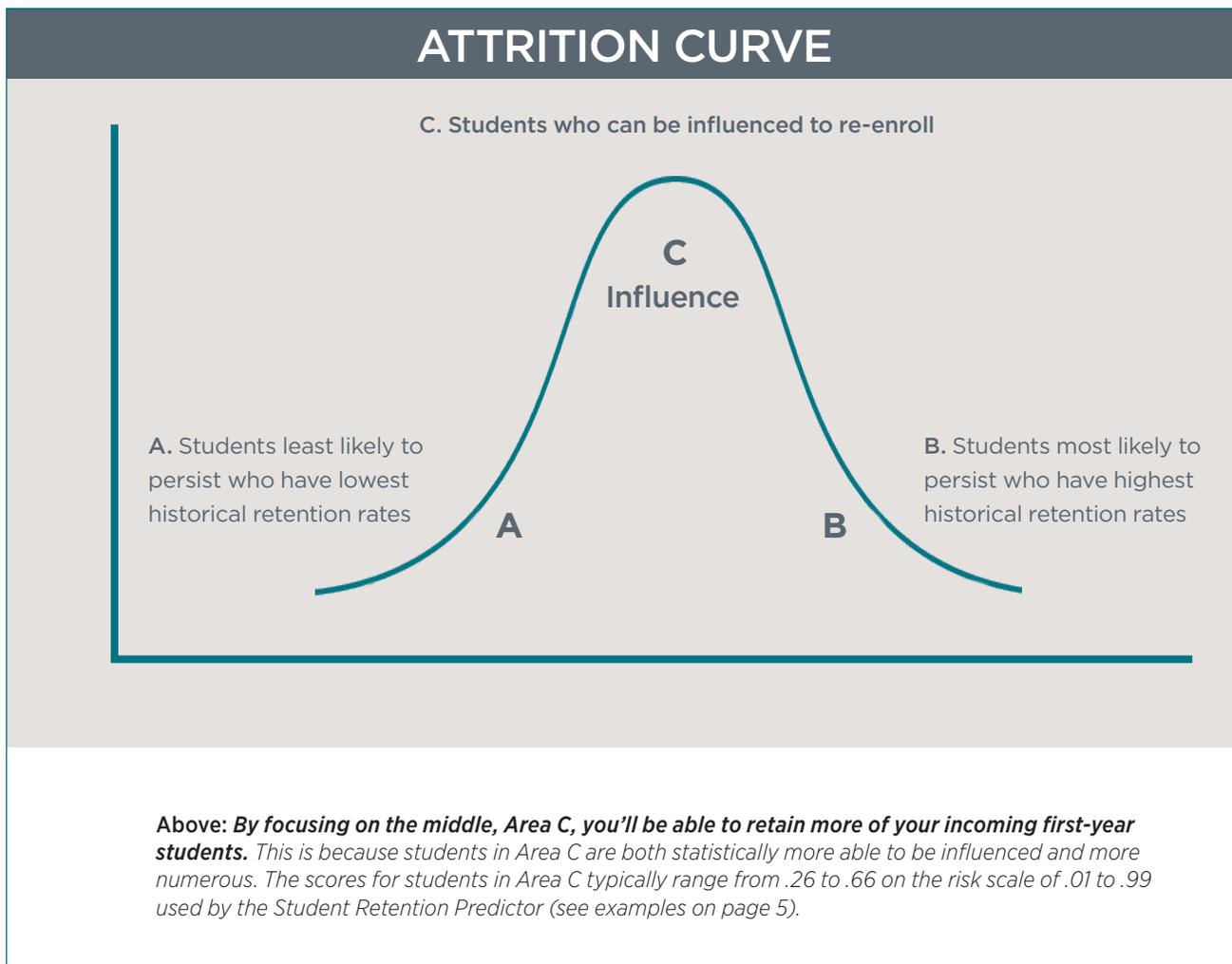
Target your outreach and interventions strategically and scientifically	3						
How it works	4						
Student scores	5						
<p>Receive risk ratings for each incoming first-year student on a scale of .01 to .99 such as:</p> <table border="1"> <tr> <td>Tracy Williams</td> <td>.66</td> <td>Might Persist</td> </tr> <tr> <td>Todd Bauman</td> <td>.24</td> <td>Highly Unlikely to Persist</td> </tr> </table>		Tracy Williams	.66	Might Persist	Todd Bauman	.24	Highly Unlikely to Persist
Tracy Williams	.66	Might Persist					
Todd Bauman	.24	Highly Unlikely to Persist					
Manage your analytical data	8						
Case examples	9						
Part of the Retention Management System <i>Plus</i>	11						

Expect results within the first year

Colleges and universities that are using the Student Retention Predictor to redirect their campuswide student success initiatives, all across campus, are seeing an average increase of two to three percentage points in first- to second-year retention rates within their first year of using the data. These gains have been followed by further incremental improvements in subsequent years and are occurring on both four-year and two-year college campuses.

Target your outreach and interventions strategically and scientifically

The Student Retention Predictor shows you where to concentrate interventions. The attrition curve below illustrates how the Predictor makes retention planning easy:



Find out how you can increase student persistence through proactive intervention

Contact a Ruffalo Noel Levitz student retention strategist about how you can engage incoming students earlier and more effectively, guided by your institution's data. We can discuss retention modeling, assessment strategies, intervention initiatives, and retention planning.

Email ContactUs@RuffaloNL.com or call 800.876.1117.

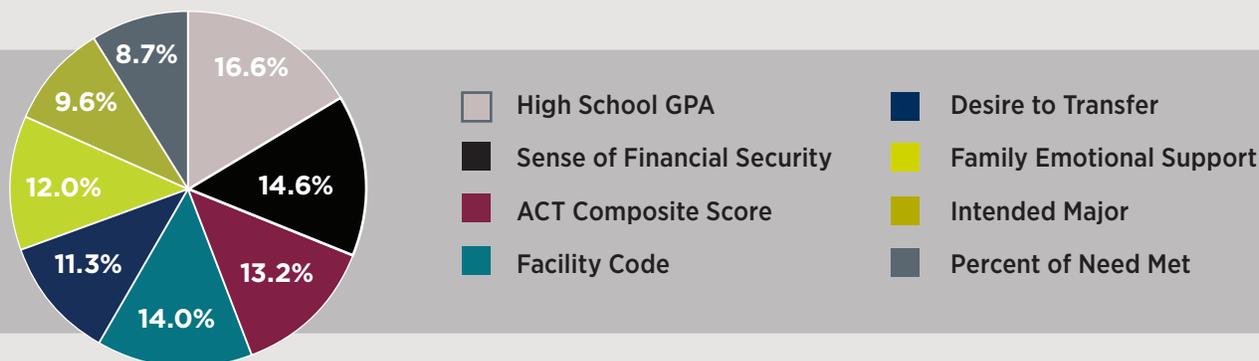
How it works

The Student Retention Predictor uses your institution’s past enrollment data to predict future retention results. Key for practitioners, the findings are available at the time of enrollment, so interventions can begin immediately without waiting for faculty or student affairs staff to raise alerts.

To produce its model scores, the Predictor examines what characteristics, functioning together, are most predictive of retention. Campus models typically have four to eight variables in their model, as in the example below. **Literally hundreds of variables may be considered.** For each variable in the final model, the tool provides a numeric risk threshold at which a student would be flagged for that factor.

Sample Student Retention Predictor Model

Relative Strength of Model Variables



The advantage of predictive modeling using incoming student data

At first glance, this approach may sound like it’s nothing new. For years, many institutions have used their own, in-house modeling to isolate one, two, or three predictive variables that correlate with persistence—such as an incoming student’s high school GPA or a student’s score on the ACT or SAT. But the Student Retention Predictor takes this approach another big step forward by pooling the predictive power of much larger groups of variables that predict retention in order to **more precisely guide early interventions.**

One might ask, for example, “How predictive is the high school GPA vs. the SAT score vs. the other 150 variables statistically identified as predictive for students entering our institution?” To answer this question, the Predictor uses logistic regression on previous enrolled students’ backgrounds from the admissions office, financial aid department, previous institutional outcomes, and any other previous enrolled student data that an institution has available, along with other pre-matriculation data that can be integrated into the study, such as student motivation assessments (see page 11—Retention Management System *Plus*).

Tap into the power of early, multivariate analyses

See examples of how to use the Student Retention Predictor on the pages that follow.

Receive individual student scores to drive your retention strategy

The Student Retention Predictor provides risk scores for each of your first-year undergraduates, helping you target interventions and allocate resources where they will have the greatest impact on retention. A scoring may look like this:

Jane Jennings	.99	Highly likely to persist
Ben Pierce	.78	Highly likely to persist
Tracy Williams	.66	Might persist
Heather Smith	.59	Might persist
Ryan Harris	.51	Might persist
Bruce Adams	.48	Might persist
Patricia Gill	.39	Might persist
Todd Bauman	.24	Highly unlikely to persist
Kelly Lockhart	.12	Highly unlikely to persist

Know the score with your incoming students. The Student Retention Predictor assigns every student a score from .01 (highly unlikely to persist) to .99 (highly likely to persist).

Jane and Ben are highly likely to persist. Even without interventions, they will likely remain students.

Tracy, Heather, Ryan, Bruce, and Patricia are on the fence. Students like these should be your highest priority for interventions.

Todd and Kelly are at high risk for withdrawing. There aren't enough students like Todd and Kelly to meet your retention goals, so you'll need to focus most of your personalized attention on the fence-sitters.

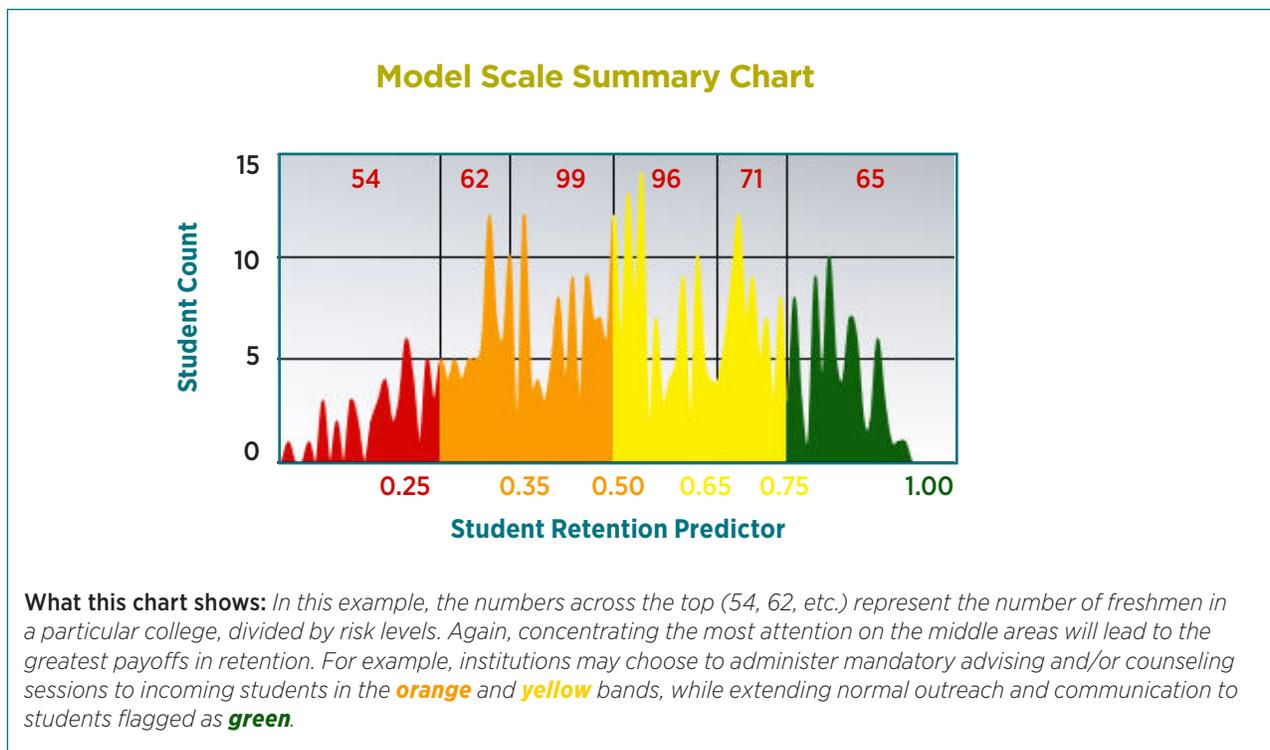
Above: Because every student receives a score, it is very easy to prioritize individual students for interventions. You can integrate the scores with your campus-based student information systems and with other early-intervention triggers, such as course attendance and online surveys, for an integrated approach to maximizing student success.

Optional second model for second-year undergraduates

Studies show attrition is greatest during the first year of college, but year two brings substantial attrition as well. To extend the impact of the Student Retention Predictor to year two, campuses can request a second model focused specifically on their second-year undergraduates.

Receive score band reports for goal-setting

In addition to individual scores for each student, campuses using this technology also receive color-coordinated score bands for identifiable clusters of their students to assist with targeting, prioritizing, and goal-setting. A sample score band might look like this:



Our consultants will show you how you can use the scores and their associated risk factors to help you achieve your retention goals.

Sample report with goal-setting

Case example for an incoming cohort of 447 students

Model Score	Historical Persistence Rate	Incoming Cohort	Predicted Retention	GOALS		
				Goal Increase %	Retention Goal	Desired Outcome
0.00-0.25	49.3%	54	27	0.0%	49.3%	27
0.26-0.35	62.3%	62	39	0.0%	62.3%	39
0.36-0.50	73.0%	99	72	4.0%	77.0%	76
0.51-0.65	81.0%	96	78	4.0%	85.0%	82
0.66-0.75	85.4%	71	61	4.0%	89.4%	63
0.76-1.00	91.3%	65	59	2.0%	93.3%	61
		447	335			347
			75.0%			77.7%

What this report shows: *In this example, an aggressive liberal arts institution with 447 incoming first-year students is seeking to raise its historical first-to-second-year persistence rate by 2.7 percentage points in one year. Notice that most of this growth is aimed at the middle score bands. If realized, this institution will immediately receive more than \$260,000 in additional tuition revenue.*

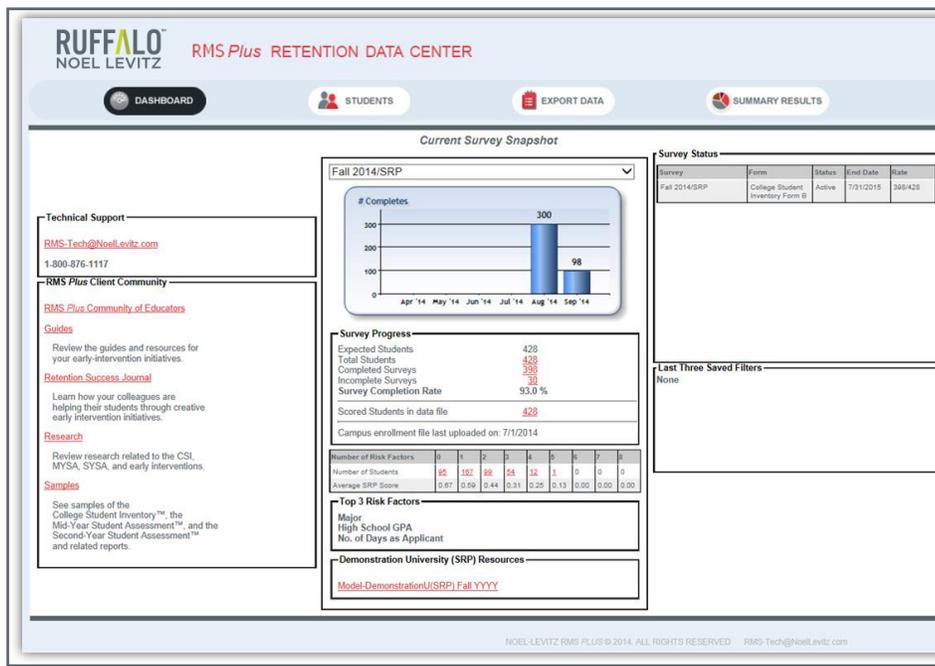
Ask for a free consultation via conference call

How can you manage your students' persistence more strategically using the Student Retention Predictor? Gather your colleagues for a free consultation conference call.

Email ContactUs@RuffaloNL.com or call 800.876.1117.

Manage your analytics data from the online Retention Data Center

A secure, online Retention Data Center makes it easy for you to manage the data from the Student Retention Predictor as well as your other Retention Management System *Plus* components from one convenient dashboard:



See for yourself: Ask for a hands-on preview of the Retention Data Center where you can access data from the **Student Retention Predictor** and all of the components of the **Retention Management System Plus**. Send us a preview request or call toll-free 800.876.1117 to speak to a student success and retention specialist.

Dedicated four-member support team

We assign a dedicated support team to your campus for the life of your Student Retention Predictor service:

- Retention Consultant**—Helps you match the model to your retention goals. Your consultant provides phone and email consultation and also makes a visit to campus each year.

- Statistician**—Works with a data integrity analyst to build the model, refine it, and test it for statistical accuracy.

- Data integrity analyst**—In association with the consultant and your statistician, helps identify data important to the modeling process and provides quality checks to ensure data are accurately and consistently defined.

- Technical support specialist for the Retention Data Center**—Answers any technical questions as needed as you manage the data in the online dashboard.

An accurate model depends on good, clean input data. Even more important, improving on the model predictions requires using the results to drive engagement with students. Our four-person support team will assist you with this work.

CASE STUDY | Lynchburg College (Virginia)

Read how this college is using the Student Retention Predictor to make incremental retention improvements

For more than a decade, Lynchburg College has dedicated significant attention to student retention and assessment. The college zeroed in on the Student Retention Predictor to take its retention to the next level and to target its limited resources for more effective results.

Like many institutions, the officials at Lynchburg felt they had the technical knowledge in-house to run logistic regression and to merge diverse data, but judged this was not the best use of their time. Instead, they concentrated on strategically addressing the risk factors identified by the analysis, including information that went beyond that provided by their long-trusted assessment of incoming students, the College Student Inventory,* to include three years of previous entering cohorts' retention behavior and their profiles.

Risk factors that were unique to Lynchburg were exposed through this process. One of the first things the college did after receiving the findings was to look at its distribution of students across the identified risk factors—how many students had zero risk factors? How many had more than four risk factors? The college proceeded to share this information with advisors and made sure that at-risk students received priority attention and information, adding even more focus to Lynchburg's existing early-alert system.

Results within one term

The following early results are from Lynchburg's first term after using the Student Retention Predictor and the stepped-up interventions:

- 91 percent fall-to-spring retention rate—an increase of two percentage points (45 additional students).
- Retention of male students increased, overcoming their historically higher risk levels for attrition.
- Fall-to-spring retention of another at-risk group rose eight percentage points, from 85 percent to 93 percent.

Going forward, Lynchburg plans to continue assessing its incoming classes with the Student Retention Predictor with an eye toward helping its next groups of students overcome even more of their identified risk factors.

"We had our highest retention numbers ever this past year. The Student Retention Predictor is really good at predicting which students will stay, and it helps us see how to keep them into the second year."

ANGELO L. COLON, JR. | LYNCHBURG COLLEGE

Case study published with the permission of Lynchburg College

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*See description on page 11. The College Student Inventory is an early-alert motivational student survey that works hand-in-hand with the Student Retention Predictor. The inventory is a central part of the Retention Management System *Plus*.

More case examples from campuses

The following is an excerpt from “Predictive Modeling for Retention,” a blog post by Ruffalo Noel Levitz consultant Lew Sanborne, PhD

One thing that appeals to me about working for Ruffalo Noel Levitz is our emphasis on data-informed decision making. Especially in the current economic climate, we need data to direct us to the solutions that have the greatest potential to be cost-effective.

Let me share with you a few examples of how some of the campuses I work with have used predictive modeling for retention. At one school, the ACT math subscore was one of the six variables in the model. This finding led us to a focused exploration of math placement and curriculum measures. Before they began using the Student Retention Predictor, this campus allowed students to start the math curriculum with little regard to their prior math experience. Within a year they developed a math placement system and piloted a new entry-level math course for students who needed skill development. When we remodeled two years later, ACT math was no longer part of the predictive model, and students were experiencing much higher success levels in quantitative courses.

On another campus, the predictive model revealed an instructive pattern based on the distance from the students’ home addresses to campus. Students basically fell into one of four zones. Students in zone one, the zone surrounding the college, retained at a high rate, as did those in zone three. Students in zone two, the next closest to campus, retained at a lower rate, as did those from the farthest away in zone four. Again, this helped us focus on students whose level of risk might have otherwise gone undetected. After some additional analysis, our intervention on this campus focused on improving access to campus work opportunities for students in zone two, those who lived close enough to go home on the weekends to work, but not so close that they could spend weekend nights on campus. Also, for students in zone two and zone four, we ramped up our outreach related to co-curricular activities.

One of my favorite things about predictive modeling is that we often see a variable that surprises us on first glance, but makes sense as we deepen our analysis. That was the case with both campuses and variables I described above. While many academic and financial variables come as no surprise, they still provide compelling evidence of the need for resources to address these student risk factors. That may mean direct support for academic skill development or more indirect programming in financial literacy to help students make better financial choices.

Whether predictive variables are a surprise or not, knowing what they are allows us to focus more strategically on what matters to students and contributes to their success on our campuses.

About Lew Sanborne, PhD

Dr. Lewis Sanborne is the Ruffalo Noel Levitz leader in strategic enrollment planning. He offers more than two decades of experience in higher education and enrollment management. You can reach him by email at Lewis.Sanborne@RuffaloNL.com or call 800.876.1117.

“One of my favorite things about predictive modeling is that we often see a variable that surprises us on first glance, but makes sense as we deepen our analysis.”

LEWIS SANBORNE, PhD | ASSOCIATE VICE PRESIDENT, RUFFALO NOEL LEVITZ

Part of the Retention Management System *Plus*[™]

Often included in the data evaluated by the Student Retention Predictor are the results of three early-alert, noncognitive, motivational surveys

Clarity on students' needs for early intervention comes more sharply into focus with the following three motivational, early-alert surveys that round out the Retention Management System *Plus*[™] alongside the Student Retention Predictor. Used together, predictive modeling and these surveys show colleges and universities how to guide their students through critical retention junctions and further strengthen student success.

Incoming students

College Student Inventory[™]—Prioritizes retention interventions by assessing the noncognitive strengths and challenges of each incoming student. Administered before or early in a student's first term.

First-year students at the end of the first term

Mid-Year Student Assessment[™]—Equips you to strengthen student persistence by identifying changes in students' needs at the mid-point of their first year. This is a follow-up post-test for the College Student Inventory.

Sophomore/second-year students

Second-Year Student Assessment[™]—Extends and strengthens interventions into the second year by surveying the needs and motivational levels of second-year college students.

Know more about your students than academic records can tell you

The noncognitive data collected by our early-alert online assessments identify each individual student's academic and social motivation, coping skills, level of engagement, commitment to college, and receptivity to assistance from advisors, academic support offices, career counselors, and other campus services.

Used together, the Student Retention Predictor and the assessments allow campuses to more fully individualize their responses to each individual student and to more clearly see how to make advising sessions, support services, and classroom retention strategies even more relevant and effective.

See samples online at www.noellevitz.com/RMSPlus

- Receive additional data variables for the model;
- Further individualize interventions with incoming students in combination with the model scores; and
- Identify each incoming student's academic and social motivation, coping skills, and requests for institutional support.

Want to learn more? Schedule a consultation, or email any questions you have

Send an email to ContactUs@RuffaloNL.com or call 800.876.1117 and ask to speak with our student retention strategists. We can answer the questions you have about the Student Retention Predictor and advise on early intervention and retention strategies based on your institution's data.

About Ruffalo Noel Levitz

A trusted partner to higher education, Ruffalo Noel Levitz helps systems and campuses reach and exceed their goals for enrollment, marketing, and student success. Over the past three decades, our higher education professionals have consulted with thousands of colleges and universities nationwide.

For more than a decade, Ruffalo Noel Levitz has been customizing its statistical modeling services to fit the exacting needs of higher education. When you score your students with the Student Retention Predictor, you can be sure they've been put through the most rigorous statistical analysis available.

For more information, contact:

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