

Student Success Predictive Model

An Introduction to Predictive Analytics

Why Use a Predictive Model?



Visibility

Uncover Hidden Student Risk

- Identify how risk is distributed across institution
- Surface risk that would not otherwise be visible



Early Intervention

Act Early, Avoid Later Problems

- Allow early risk prediction based on Day 1 factors
- Flag alerts early if students are off track in major



Triage

Prioritize High Risk Students

- Evaluate how students in a single list/cohort compare in terms of risk
- Prioritize students for initial targeting

Early, General Guidance for Assessment & Intervention



Advanced Search



Major Explorer



Population Health



Predictive Influencers

Leverage key features to...



Employ targeted outreach campaigns to monitor and track risk at the institution-level



Better understand individual student risk and better inform on-on-one student conversations

How Does the Predictive Model Work?

The Student Success Predictive Model (SSPM) uses your institution's historical data coupled with the latest breakthroughs in statistics and data science to make informed predictions around current students' likelihood to achieve a given success outcome—for Clemson University, the SSPM is evaluating **a student's likelihood to graduate in 6 years**.

When applied to your current student population, the SSPM assigns a 'success score' (a numerical value between 0.0 and 1.0) to each student indicating their likelihood to graduate in 6 years, given their unique characteristics and how similar students performed in the past. Once given this score, students are sorted into three buckets: **high risk**, **moderate risk**, and **low risk** levels.

At Clemson, these buckets are defined as follows:

Success score thresholds:

.5 .69



Current student risk level breakdown:

8.9% high risk 6% moderate risk 85.1% low risk

Average GPA among current students:

2.07 2.55 3.25



When applied to the historical student population, **28.1% of high risk** students went on to ultimately graduate, **58% of moderate risk** students went on to graduate, and **92.6% of low risk** students went on to graduate.

The SSPM According to Clemson: Data Deep Dive

Which Data Points Were Used to Train the SSPM?



Source: As our Data Science team created your model, they evaluated many different data points for their predictive quality. Some of these data points are available directly in your SIS, others are derived by our Data Science team using proprietary methods.



Type: The model training process uses both variable data points, such as academic progress and performance metrics, as well as static factors, such as demographic indicators and pre-enrollment data.



Impact: These data points have different importance in the model depending on their evaluated predictive power, and the weight of a given factor can change over the course of a student's time at the institution.

Which Predictors are Most Influential on Student Success as Defined by the SSPM?

As students progress through his/her academic career, different factors will contribute more heavily to their success at different points in time. Below are the top predictors for each subgroup of students:

Students with 0 Accumulated Credits

Non-Transfer Students

- Estimated Skills
- Gender
- Average Success Outcome of Students Declared in Same Major
- Credits Attempted Current Term
- Age at First Term
- Veteran Indicator
- Transfer Indicator
- Major-Skill Alignment
- Average Credits Attempted per Term

Students with Between 1-60 Accumulated Credits

Non-Transfer Students

- Number of Completed Terms
- Average Success Outcome of Students Declared in Same Major
- Ratio of Earned to Attempted Credits
- First Term Transfer Credits
- Cumulative GPA
- SAT/ACT Verbal Score Percentile
- SAT/ACT Math Score Percentile
- Proportion of Transfer Credits
- Veteran Indicator

Students with Between 61-120 Accumulated Credits; Non-Transfer Students

- Number of Completed Terms
- Term GPA Earned During First Term
- Ratio of Earned to Attempted Credits
- Overall Grade Variance
- Average Success Outcome of Students Declared in Same Major
- Average Credits Attempted per Term
- Trend in Term GPA
- Cumulative GPA
- A student's cumulative GPA ranked in terms of percentile when compared to other students declared in the same major.

Students with More Than 120 Accumulated Credits; Non-Transfer Students

- Average Credits Attempted per Term
- Ratio of Earned to Attempted Credits
- Number of Completed Terms
- Estimated Skills
- Credits Attempted Current Term
- First Term Transfer Credits
- Overall Grade Variance
- Average Success Outcome of Students Declared in Same Major
- Cumulative GPA

For a full list of all predictors included in your model, ask your Dedicated Consultant.

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As students progress through his/her academic career, different factors will contribute more heavily to their success at different points in time. Below are the top predictors for each subgroup of students:

Students with Between 1-60 Accumulated Credits

Transfer Students

- Estimated Skills
- Age at First Term
- Cumulative GPA
- Credits Attempted Current Term
- Number of Completed Terms
- Average Success Outcome of Students Declared in Same Major
- Overall Grade Variance
- Ratio of Earned to Attempted Credits
- Average Credits Attempted per Term
- A student's cumulative GPA ranked in terms of percentile when compared to other students declared in the same major.

Students with Between 61-120 Accumulated Credits; Transfer Students

- Proportion of Transfer Credits
- Ratio of Earned to Attempted Credits
- Average Success Outcome of Students Declared in Same Major
- Average Credits Attempted per Term
- Cumulative GPA
- First Term Transfer Credits
- A student's cumulative GPA ranked in terms of percentile when compared to other students declared in the same major.
- Age at First Term
- Credits Attempted Current Term
- Recent Change in GPA

Students with More Than 120 Accumulated Credits; Transfer Students

- Proportion of Transfer Credits
- Average Credits Attempted per Term
- First Term Transfer Credits
- Ratio of Earned to Attempted Credits
- Cumulative GPA
- Total Number of W Grades Earned
- Average Success Outcome of Students Declared in Same Major
- Overall Grade Variance
- Major-Skill Alignment
- Trend in Number of W Grades Earned per Term

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