Base scholarship model

DSU will marginally improve its scholarship awarding criteria by switching to a model based on high-school GPA and high-school class rank.

- The new model uses high-school GPA and class rank to predict retention or graduation by fall semester two years after the student enters DSU.
- We compared this model with similar models using ACT score alone, ACT score plus high-school GPA (the index score, our current method), and high-school GPA alone.
- The GPA + Rank model performed best.

Methods and results

We based our models on data from fall semester incoming students from 2012 to 2018. We trained the models on the data from 2012 to 2017, and tested the models on the 2018 cohort. We created the models using logistic regression with ten-fold cross validation. All models were created using the same pre-processing techniques. We used the area under the curve (AUC) metric to compare the performance of each of the models.

AUC comparisons between models

AUC measures how effectively a model distinguishes between successful students and students who drop out. The higher the AUC, the better the model is at separating successful students from unsuccessful students. An AUC score will be between .5 and 1.

Model	AUC
GPA + Rank	0.6830406
Index Score	0.6798872
ACT alone	0.6276709

Suggestions for further work

The GPA + Rank model outputs a number between 0 and 1 indicating the probability that a student will either graduate or be retained by the fall semester two years after their initial fall semester. The Institutional Effectiveness Office should work with the Financial Aid Office to determine cut scores for levels of award and the financial impact on the institution.

DSU should clarify and align the outcome of the model with campus strategic goals.