



DEWS Data Brief

January 2015

This guide explains the basic technical details of the calculations and data used in [Wisconsin's Dropout Early Warning System \(DEWS\)](#). For information on how to use DEWS data and take action, including resources and strategies to thwart dropping out, please see the [DEWS Action Guide](#).

What is a DEWS score?

The DEWS score is a prediction. It is the key indicator of the DEWS system. This score represents the estimated risk of dropping out or late graduation for an individual student.¹ It ranges from 0-100, representing the percentage of prior students—with the same characteristics as the current student—who dropped out or failed to graduate from high school in four years. A student with a DEWS score of 79 has the same characteristics as students in prior years who graduated on time at a rate of 79%. **A higher DEWS score indicates a better chance of on-time graduation.**

The risk scores are categorized into high, moderate and low risk categories. Students in the “high” risk category account for roughly 60% of all eventual dropouts or late graduates in Wisconsin, and roughly one in two students in this category, as a whole, did not graduate on-time.

In addition to the DEWS score, each student DEWS report shows an individual student's data along four malleable domains — attendance, discipline, mobility, and the annual state assessment —and rates the student's risk level as “Low,” “Moderate,” or “High” in each domain.

What data goes into the DEWS score?

The DEWS score calculation is based on data **from the prior school year**. The data used are derived from the annual ISES and WSAS calculations. For these reasons it is critical that school leaders use the DEWS score in conjunction with current local data when making intervention decisions.

The DEWS score is a calculation based on data known to be predictive of student on-time graduation in Wisconsin. DEWS uses a state-of-the-art algorithm to test and combine up to fifty unique statistical models per grade to produce the most accurate predictions possible. The model uses historical data from Wisconsin public school students to predict their observed on-time graduation based on data from their 6th, 7th, and 8th grade years.

For each grade, a separate model is fit using the following data elements:

- Attendance rates and possible attendance days,
- Out-of-school suspensions and expulsions,
- Number of school moves in the previous school year,
- Performance on the WKCE assessment,
- Characteristics of the student's school of attendance, and
- Student characteristics (ELL status, SwD status, race, gender).

The inclusion of this data allows the statistical model to make the best comparison possible between students in the current year and similar students in previous years. The end result is that the model can predict between 60% and 65% of future dropouts and late graduates. This model predicts with a false positive rate (students identified who do not dropout) below 60%.

¹ The DEWS score is not the same as the definition of “Children At Risk” under sec. Wis. Stat. 118.153.



What are the domain thresholds?

The low-, moderate-, and high-risk thresholds shown for the four domains are described in Table 1. These are not the thresholds used in the calculation of the DEWS score itself, but were set after the DEWS score was calculated to provide information on how indicators in these domains align with the DEWS score. These thresholds were designed to differentiate between on-time graduates and late graduates and dropouts.

Table 1: DEWS Risk Levels for Domains

Domain	High Risk	Moderate Risk	Low Risk
Attendance	18+ days absent in prior year	10 to 18 days absent in prior year	Less than 10 days absent in prior year
Discipline	2.5+ days suspended/expelled in prior year	1 to 2.5 days suspended/expelled in prior year	Less than 1 day suspended/expelled in prior year
Mobility	2+ moves in prior year (school or district)	1 move in prior year (school or district)	0 moves in prior year
Assessments	Lower than the 20 th percentile in reading and math	20 th to 50 th percentile in reading and math	50 th percentile or better in reading and math

Table 2 shows how these sub domains are combined with the overall score and displayed on the student dashboard. These screenshots represent four possible student Early Warning Outcomes displays on the Student Profile.

Table 2: Early Warning Outcomes Examples

Early Warning Outcomes		Early Warning Outcomes	
DEWS Outcome (Score)	High (69.4)	DEWS Outcome (Score)	Moderate (82.5)
DEWS Mobility	Low	DEWS Mobility	Low
DEWS Discipline	Low	DEWS Discipline	Low
DEWS Attendance	Low	DEWS Attendance	Moderate
DEWS Assessments	High	DEWS Assessments	Moderate
DEWS Outcome Date	08-21-2013	DEWS Outcome Date	08-21-2013
Early Warning Outcomes		Early Warning Outcomes	
DEWS Outcome (Score)	High (46.3)	DEWS Outcome (Score)	Moderate (76.1)
DEWS Mobility	Low	DEWS Mobility	Moderate
DEWS Discipline	Moderate	DEWS Discipline	Low
DEWS Attendance	High	DEWS Attendance	Low
DEWS Assessments	High	DEWS Assessments	Low
DEWS Outcome Date	08-21-2013	DEWS Outcome Date	08-21-2013



What is the margin of error?

Because the DEWS score is a prediction, there is a band of error around each student's score. This error band can be interpreted much like a margin of error in polling, representing the plausible range of risk for a student. Depending on the individual student, the range of this margin of error can vary.

DPI is working continually to increase the accuracy of the system, which should improve as subsequent years of student data become available. Additionally, a technical white paper is available online that explains the details of the calculation and the model selection process.²

Why don't some students have DEWS scores?

To receive a DEWS score a student must meet a few conditions. First, they must have been enrolled in a Wisconsin public school in the previous school year. Second, they must have taken the WKCE examination and received a score. Third, they must currently be enrolled in a Wisconsin public school for the data to be displayed.

Several types of students may not receive scores. Students who participate in the Wisconsin Alternate Assessment for Students with Disabilities (WAA-SwD) alternate assessment will not receive a score. Students who did not complete the WKCE or were not tested will not receive a score. Students who have no enrollment or attendance data for the previous school year also will not receive a score. *Students who have no DEWS score also need to be considered as a special case and be reviewed.* Not having data in the prior year or participating in the alternate assessment are both indicators that a student's record should be reviewed for current data on warning signs such as attendance, discipline, and academic performance.

Data Disclaimer

The records used in DEWS calculations reflect data as reported to DPI by the schools and districts we serve for the reporting period indicated. These records are a true and accurate representation of the data on file at the DPI. Authenticated information is accurate only as of the time of validation and verification. The DPI is not responsible for data that is misinterpreted or altered in any way.

² <http://goo.gl/XEj8U2>