

Toward an Integrated Model of College Student Success:

The Murky Gateway

Mark S. Hamner, Ph.D.
Vice Provost for IR & Improvement
mhamner@twu.edu

Michael J. Stankey, Ph.D.
Director of Analytics
mstankey1@twu.edu

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 1 of 34

New York Times: Will you graduate?

Colleges and universities increasingly looking to big data (and vendors) for answers.

“Crunching hundreds of thousands and sometimes millions of student academic and personal records, past and present, they are coming up with courses that signal a need for intervention ... The most significant seem to be foundational courses that prepare students for higher-level work in a particular major.”

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, “Toward an Integrated Model of College Student Success: The Murky Gateway” (Texas Woman’s University, 2017-12-06)

Page 2 of 34

John N. Gardner Institute: Gateway Course Definition

**Courses that are foundational in nature (e.g. lower-division),
high risk (as measured by the rates of D, F, W, I grades earned),
and high enrollment (as measured by number of students enrolled).**

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

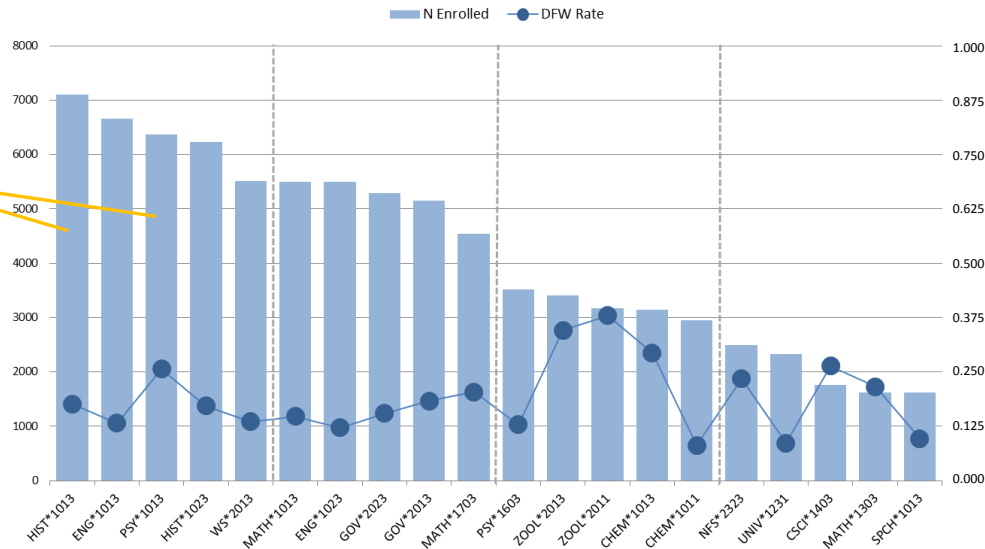
Page 3 of 34

SORTED BY N ENROLLED

DFW | All Cohorts | All Majors | All GPA | S1-S4

1

Psychology 1013 has the highest DFW rate (.256) among the Top 5 enrolled courses and the highest-enrolled History 1013 has the second highest DFW rate (.175), making them good candidates for high impact interventions, following the Gardner Gateway Course definition.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

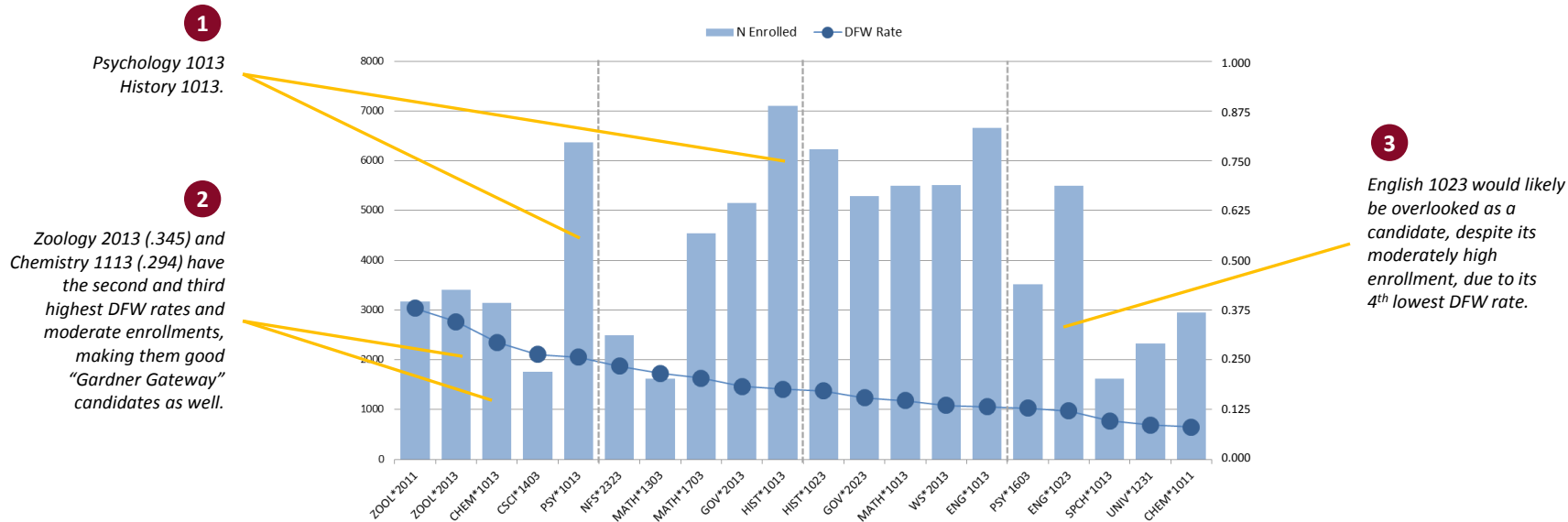


Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 4 of 34

SORTED BY DFW RATE

DFW | All Cohorts | All Majors | All GPA | S1-S4



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 5 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

Education Advisory Board: The “Murky Middle” Project

Students who end their first year with a GPA of 2.0 or lower are unlikely to graduate despite the best efforts of their colleges. Shift student-support resources away from these students and toward at-risk students with GPAs in the “murky middle.”

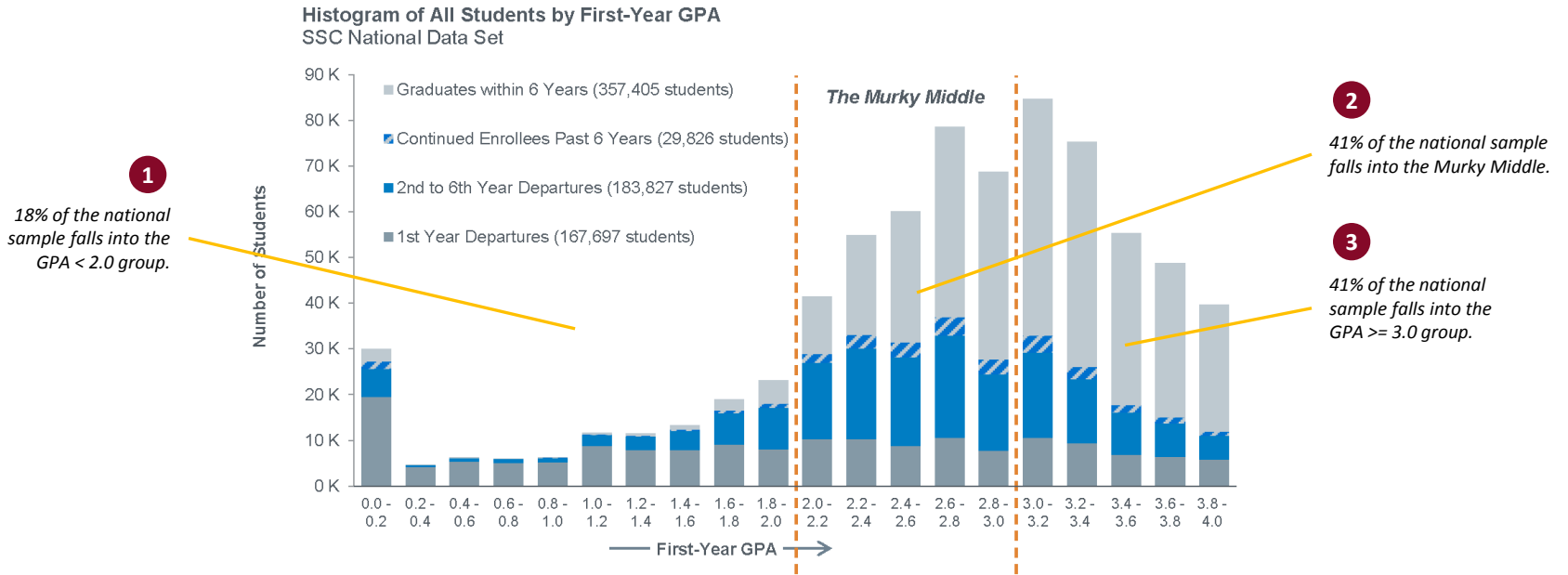
“Within this group, small academic improvements correlate with greatly heightened chances of graduation. Thus the ‘murky middle’ offers colleges a powerful return on investment. Just a small nudge could keep a student on track to graduate.”

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, “Toward an Integrated Model of College Student Success: The Murky Gateway” (Texas Woman’s University, 2017-12-06)

Page 6 of 34



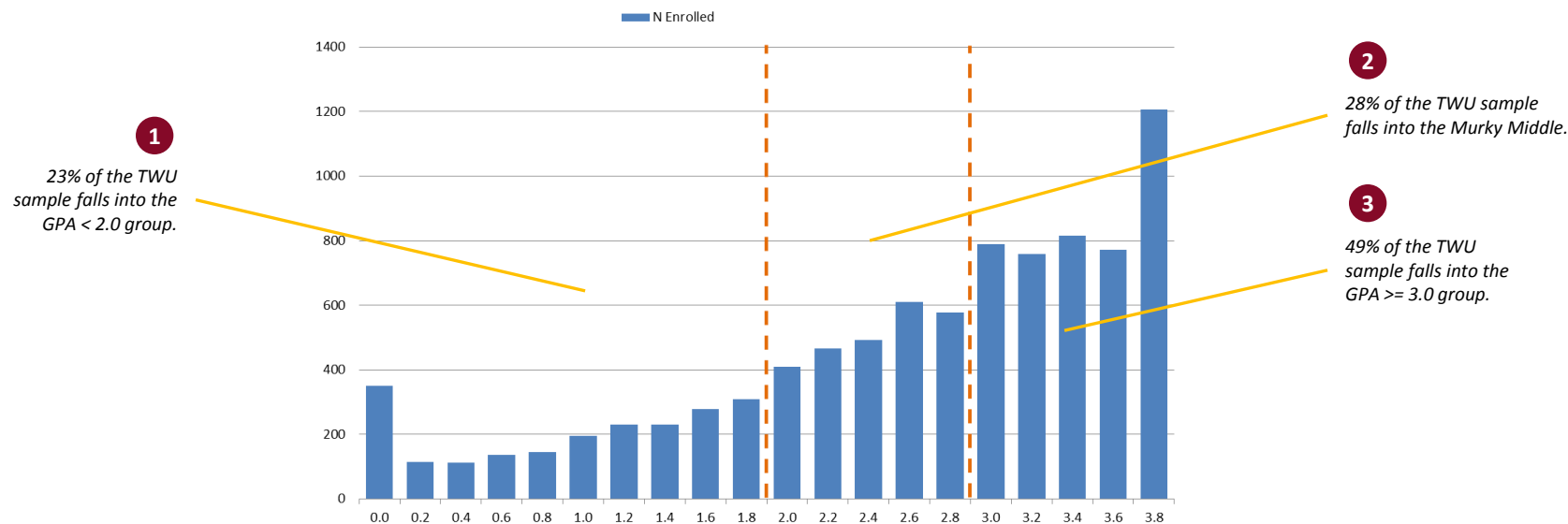
This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 7 of 34

TWU Histogram of All Students by First Year GPA



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

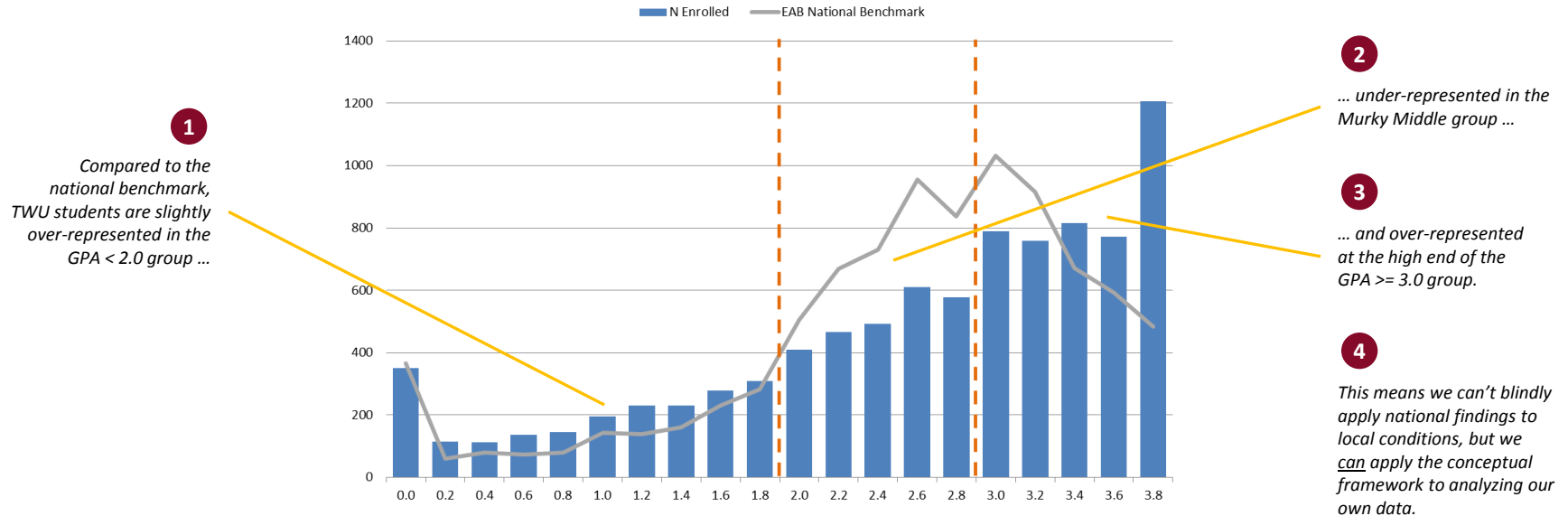
Page 8 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

TWU Histogram of All Students by First Year GPA



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 9 of 34

Texas Woman's University

Toward an Integrated Model

Both approaches have merit individually, but to what extent can they be combined to provide even more insight into factors affecting student success?

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License

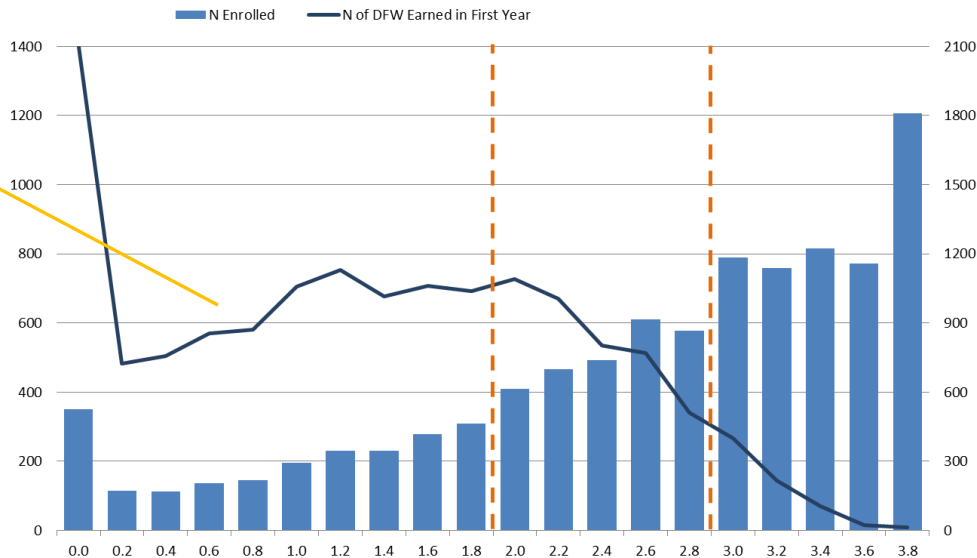


Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 10 of 34

TWU Histogram of All Students by First Year GPA

1
68% of DFWs in all courses are earned by students with a first year GPA of less than 2.0.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

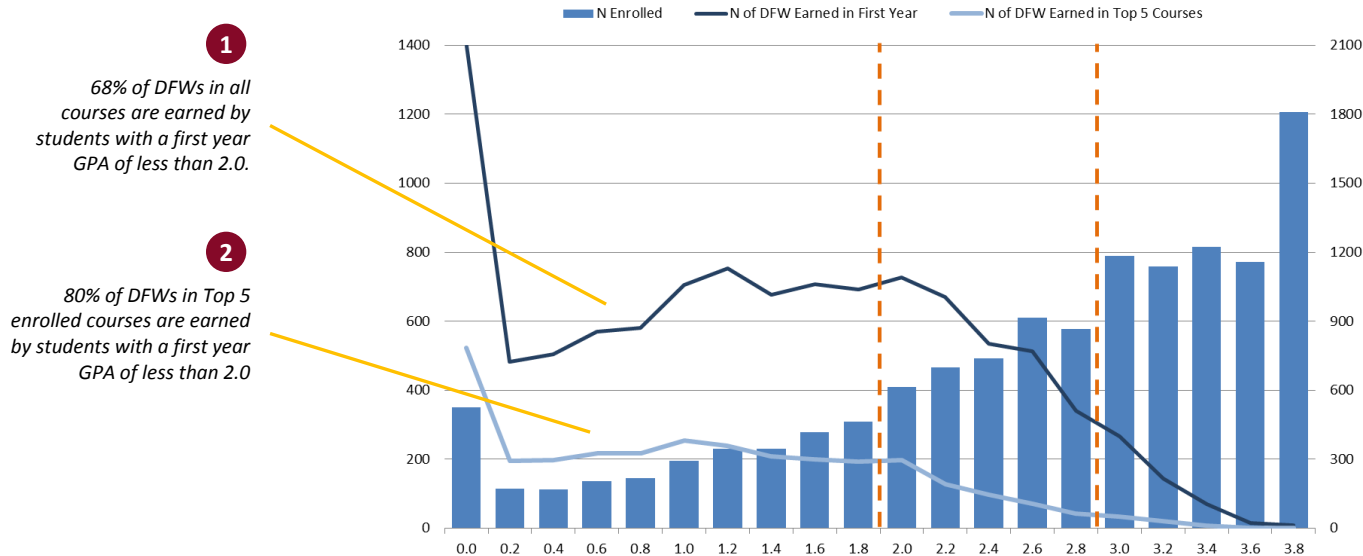
Page 11 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

TWU Histogram of All Students by First Year GPA



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

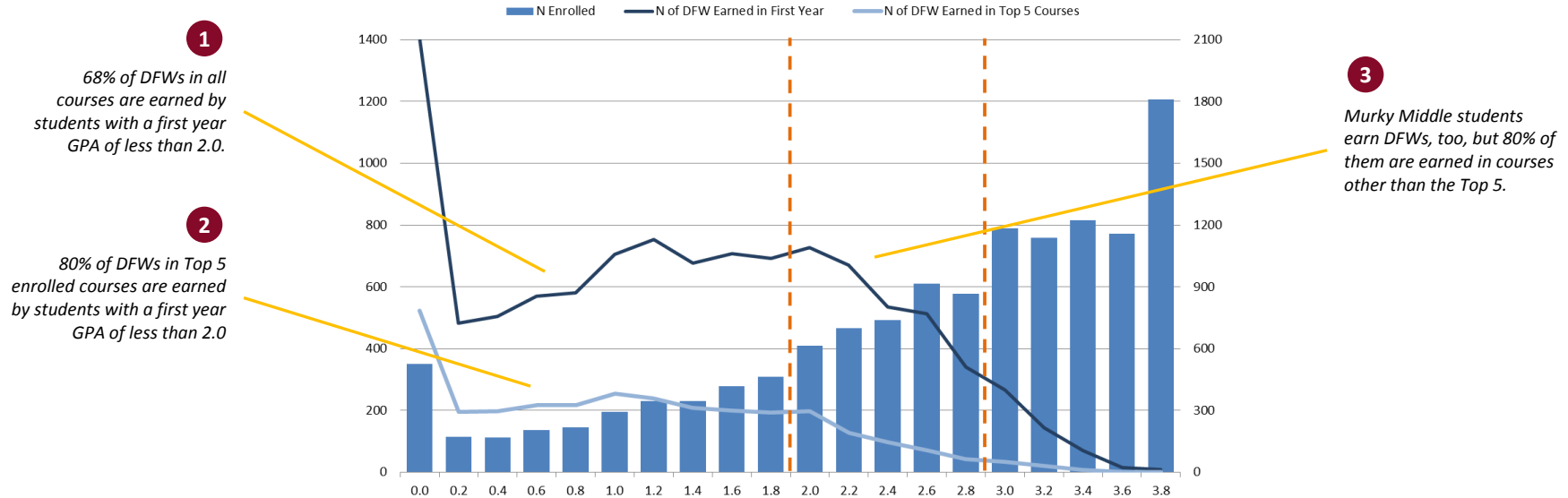
Page 12 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

TWU Histogram of All Students by First Year GPA



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 13 of 34

Potential Problem

Resources allocated to solving the overall DFW problem may be misdirected to a GPA group whose graduation prospects are unlikely to be significantly improved.

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 14 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

Potential Opportunity

**Students in the Murky Middle earn DFWs, too,
but not necessarily in the same set of courses that
give low GPA students problems. A single letter grade
in one key course could make a big difference in G6.**

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 15 of 34

Identifying the Murky Gateway

**Focus DFW analysis on the Murky Middle, but
expand parameters to identify grade thresholds
that act as barriers to persistence.**

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 16 of 34

Identifying the Murky Gateway

Focus DFW analysis on the Murky Middle, but expand parameters to identify grade thresholds that act as barriers to persistence.

Key question: To what extent do grade thresholds discriminate between persisters and non-persisters?

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



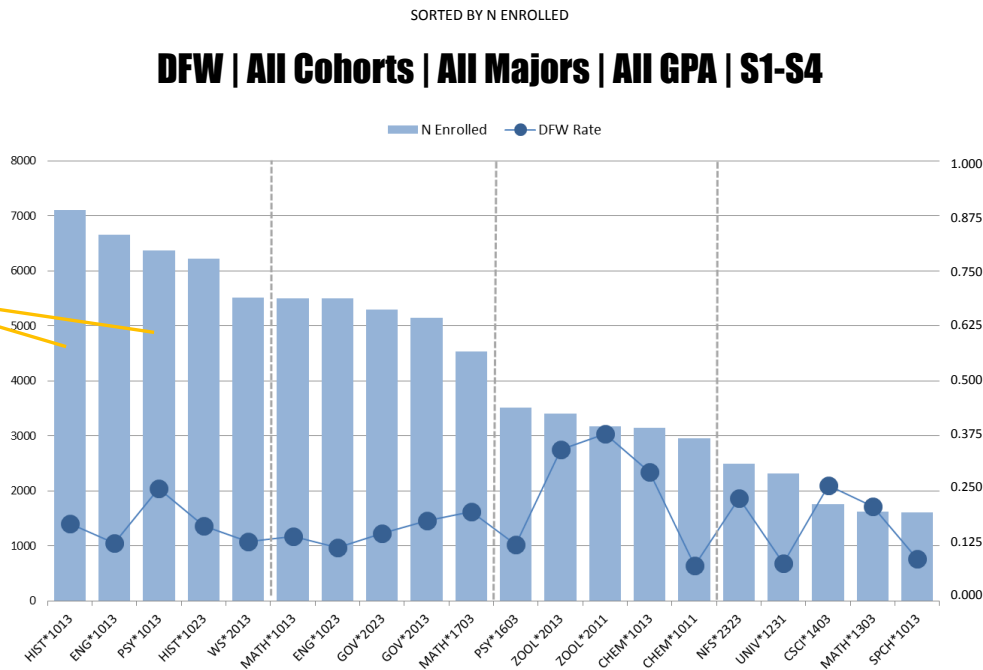
Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 17 of 34

Slide 4
repeated for context

1

Psychology 1013 has the highest DFW rate (.256) among the Top 5 enrolled courses and the highest-enrolled History 1013 has the second highest DFW rate (.175), making them good candidates for high impact interventions, following the Gardner gateway course definition.



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 18 of 34

Slide 5
repeated for context

1

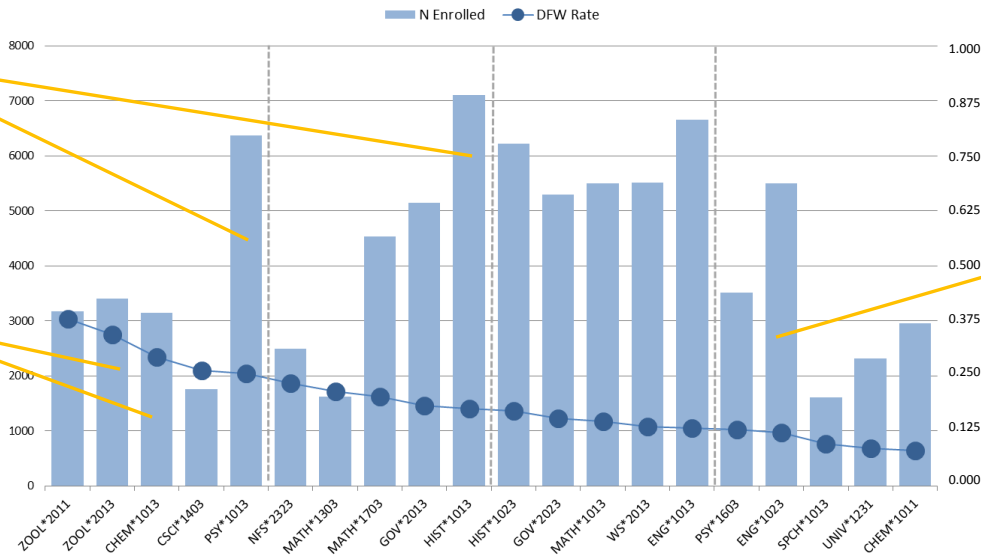
Psychology 1013
History 1013.

2

Zoology 1013 (.345) and
Chemistry 1113 (.294) have
the second and third
highest DFW rates and
moderate enrollments,
making them good
candidates as well.

SORTED BY DFW RATE

DFW | All Cohorts | All Majors | All GPA | S1-S4

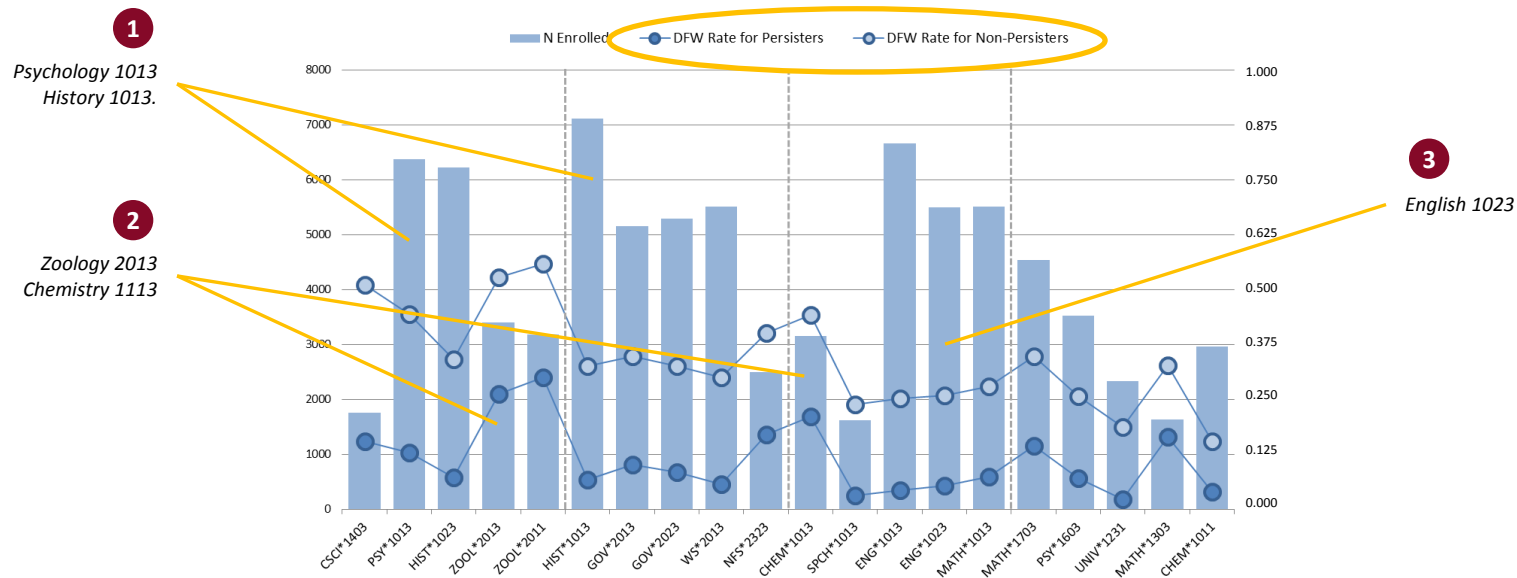


3

English 1023 would likely
be overlooked as a
candidate, despite its
moderately high
enrollment, due to its
4th lowest DFW rate.

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | All GPA | S1-S4



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License

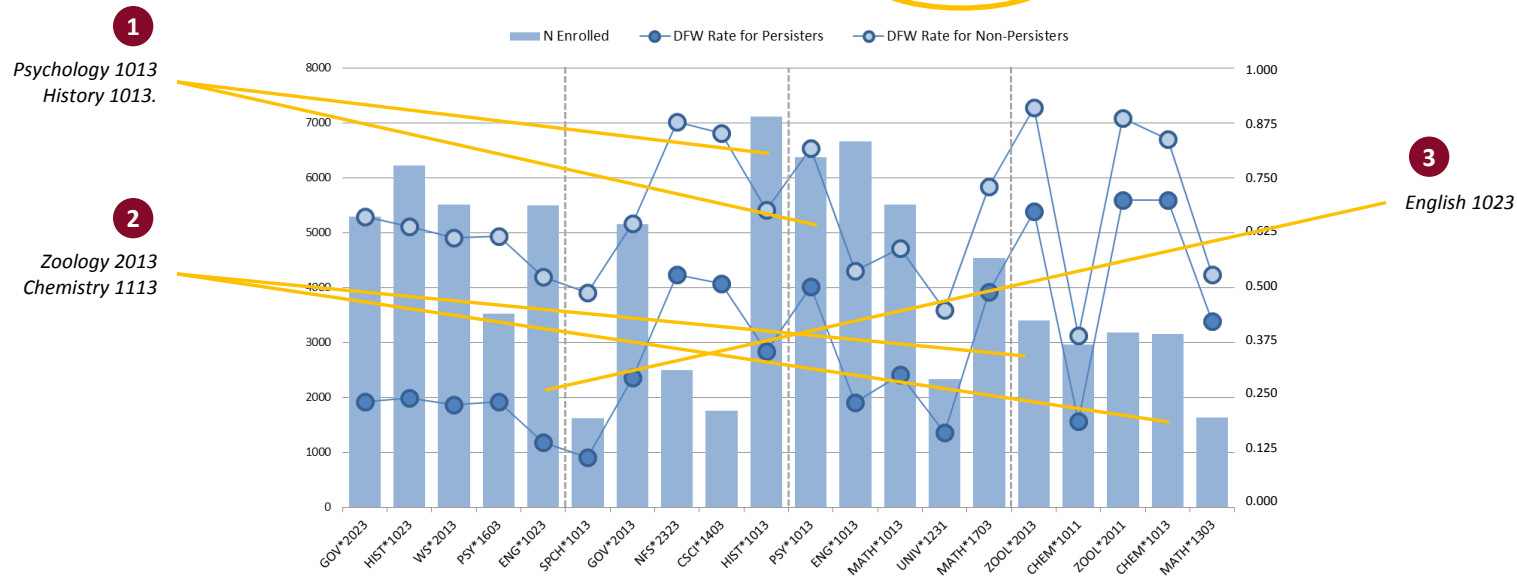


Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 20 of 34

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Low GPA | S1-S4



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License

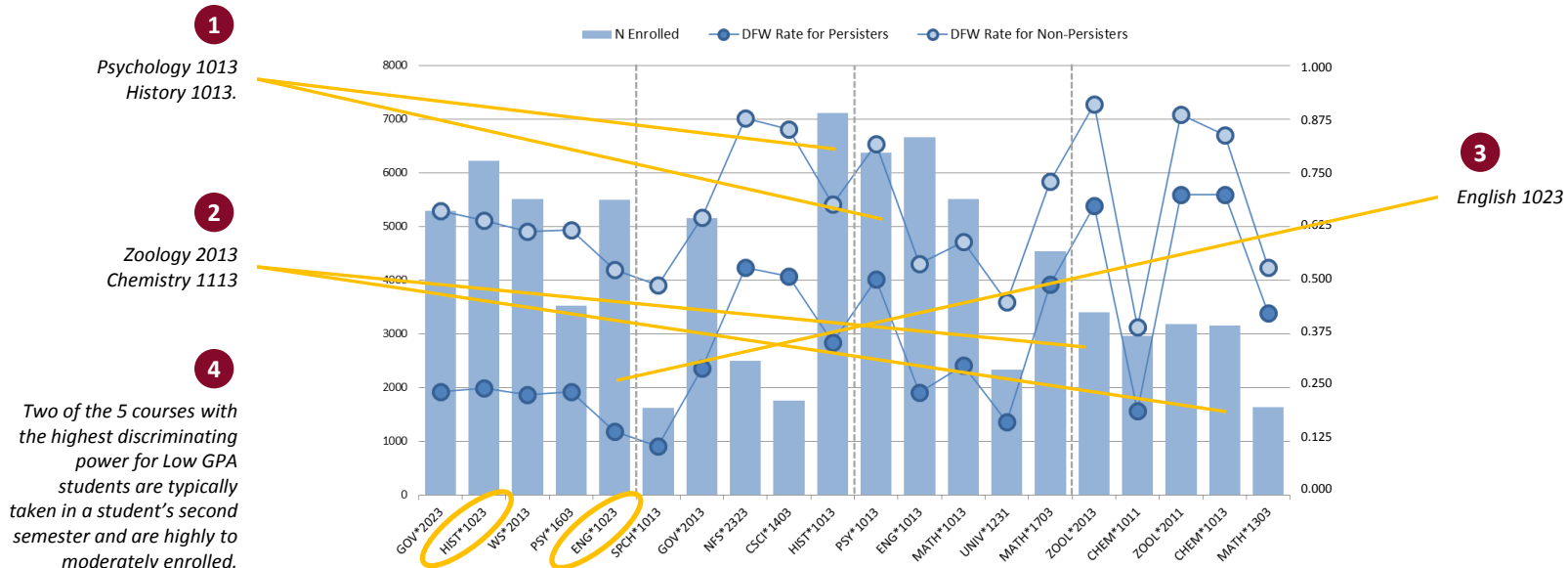


Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 21 of 34

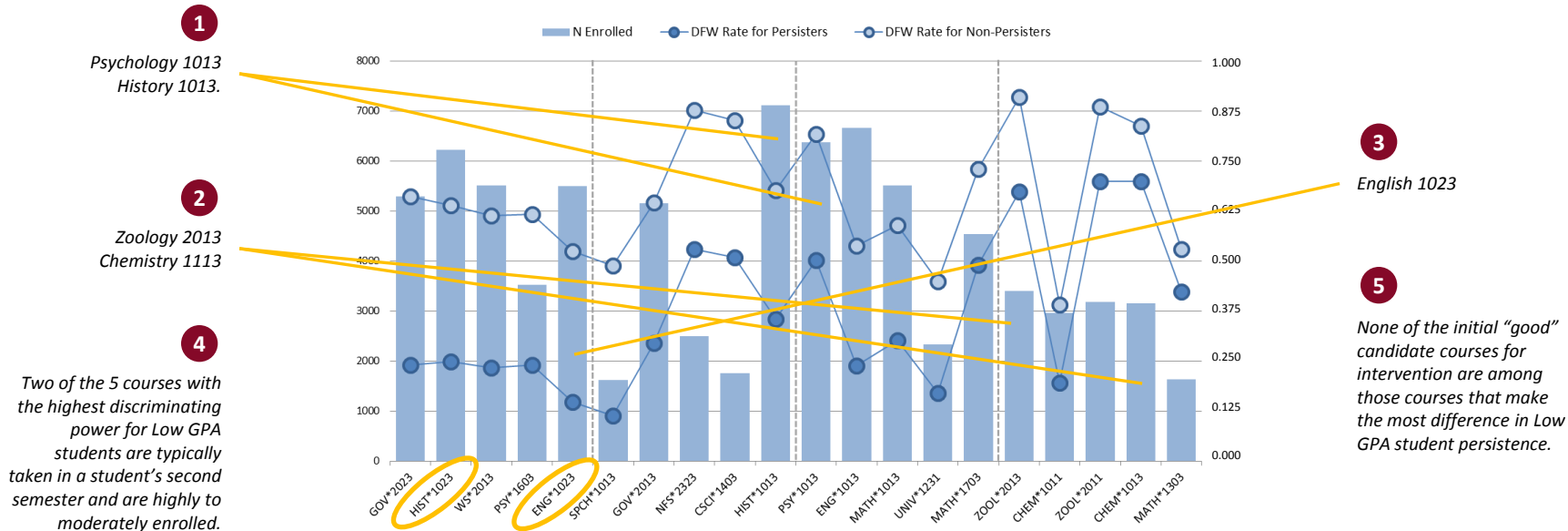
SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Low GPA | S1-S4



SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Low GPA | S1-S4



This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

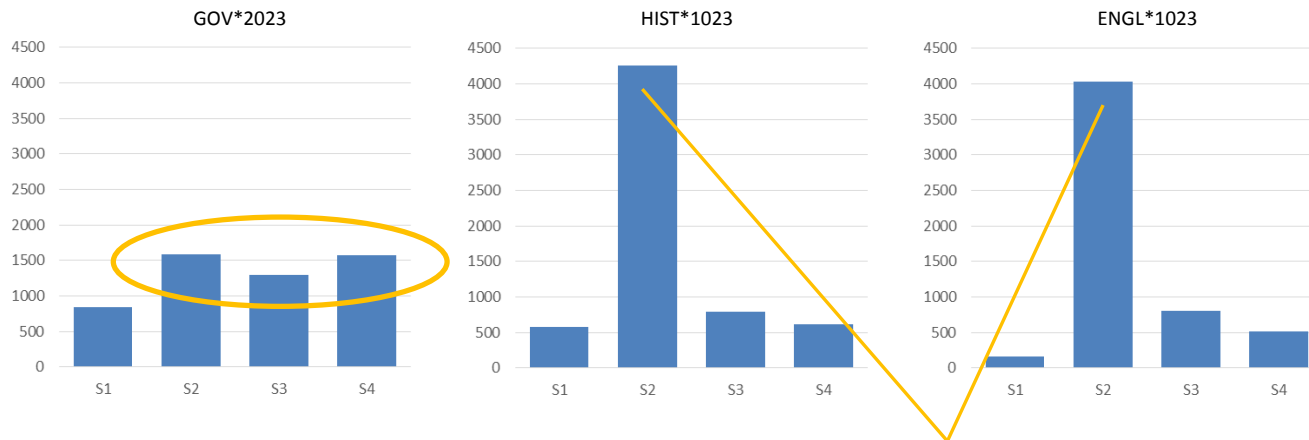
Page 23 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

Frequency Distribution of when students take Highly Discriminating Courses



1

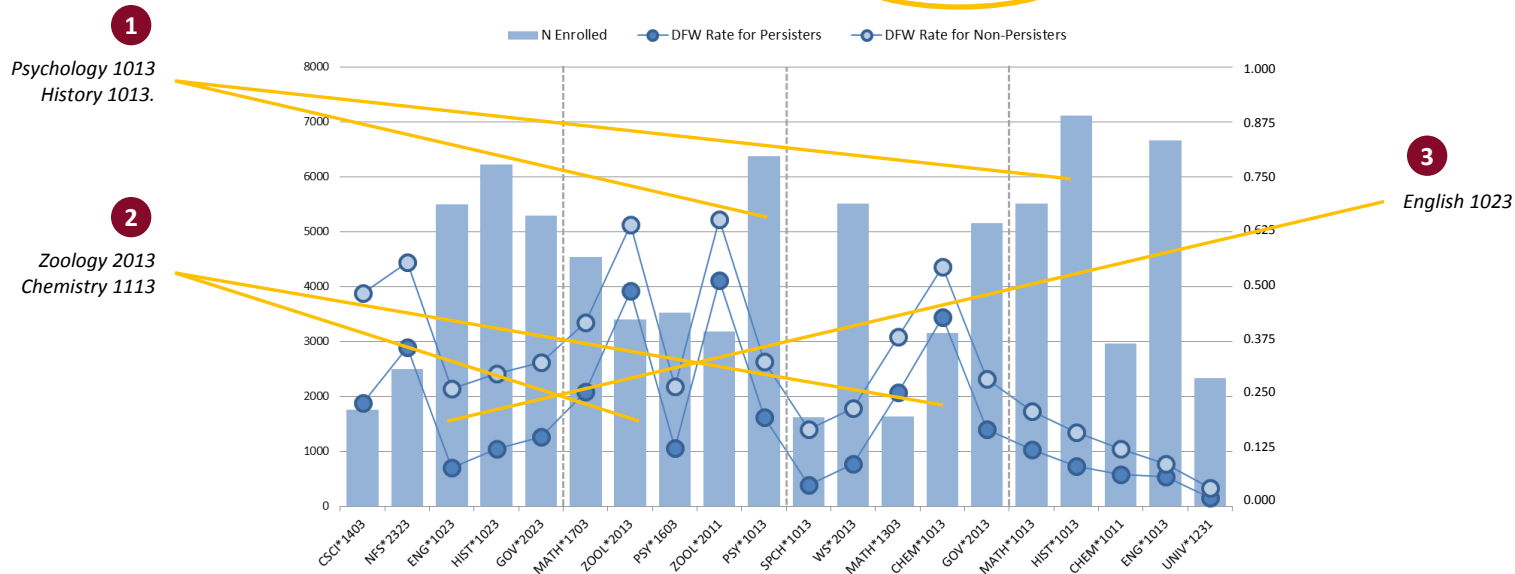
Enrollments in GOV*2023 are spread fairly evenly between Semesters 2, 3, and 4

2

Enrollments in HIST*1023 and ENGL*1023 are highly concentrated in Semester 2

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Middle GPA | S1-S4



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 25 of 34

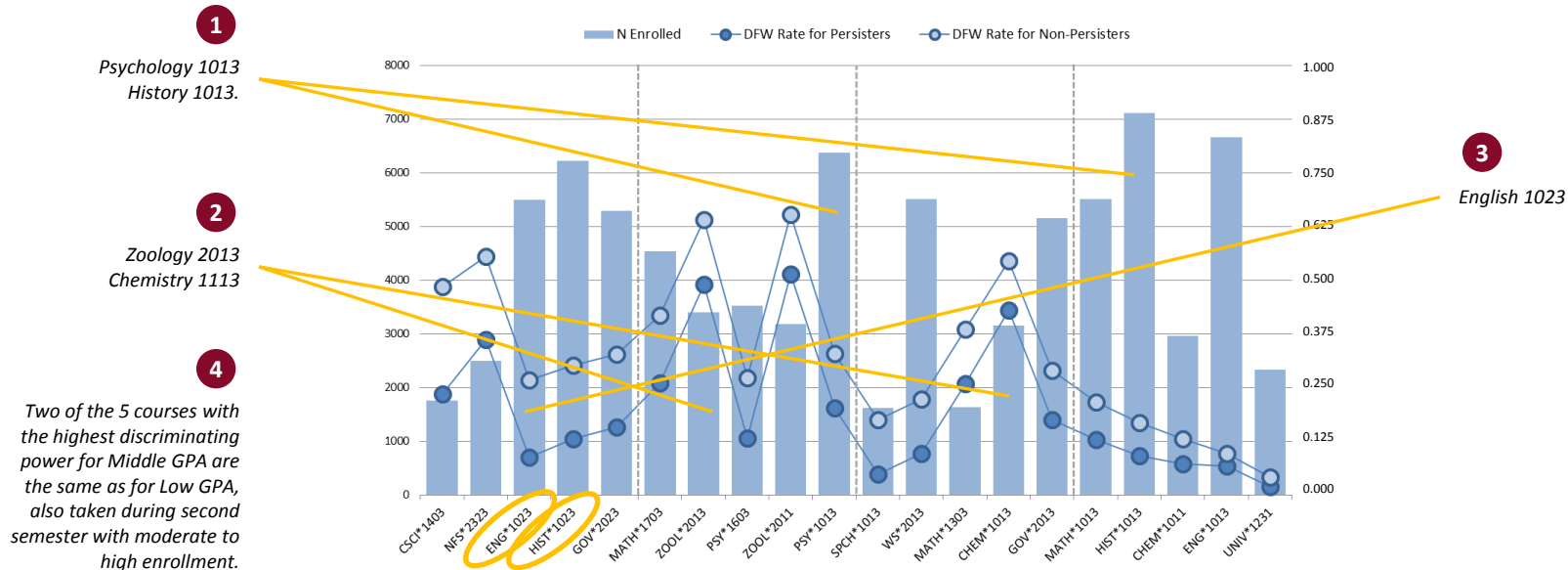


TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Middle GPA | S1-S4



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 26 of 34

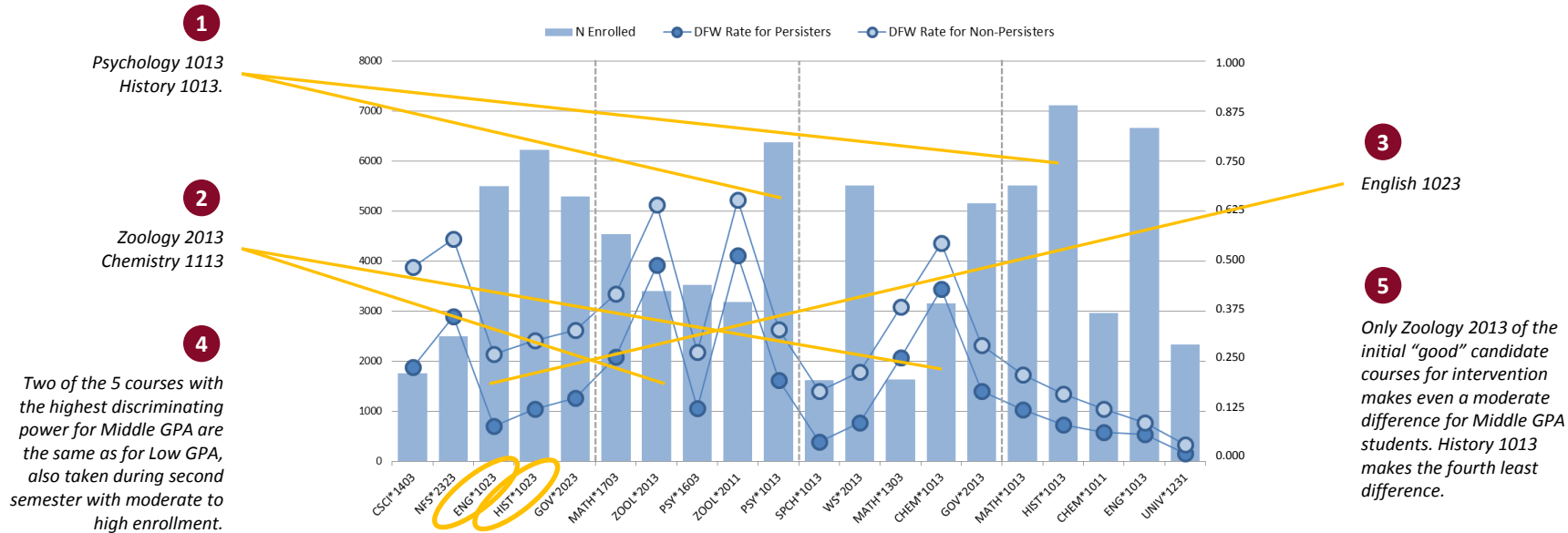


TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Middle GPA | S1-S4



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 27 of 34



TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

ABC is the complement to DFW

A focus on student success aligns more appropriately with “success” grades of ABC rather than “failure” grades of DFW and helps identify the minimum grade required.

Since ABC is the complement of DFW, the analysis will lead to the same conclusions for large N courses, but given that ABCs outnumber DFWs, courses with smaller overall N become gateway candidates, especially for the middle and high GPA groups.

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, “Toward an Integrated Model of College Student Success: The Murky Gateway” (Texas Woman’s University, 2017-12-06)

Page 28 of 34

ABC means “at least a C”

A B C D F W

A B C D F W

A B C D F W



ABC means “at least a C”

1
Focusing on “Success” grades of ABC changes the narrative by finding the gateway grade required. “Persisters earned at least a C in the course.”

2
But it’s entirely possible that the gateway grade required is higher than a C, especially for middle and high GPA students. “Persisters earned at least a B in the course.”

3
It may be necessary to draw the line even higher. “Persisters earned at least an A in the course.”

A	B	C	D	F	W
A	B	C	D	F	W
A	B	C	D	F	W

5
Focusing on “Failure” grades of DFW casts a negative tone to the discussion and doesn’t reveal the minimum necessary grade associated with persisters

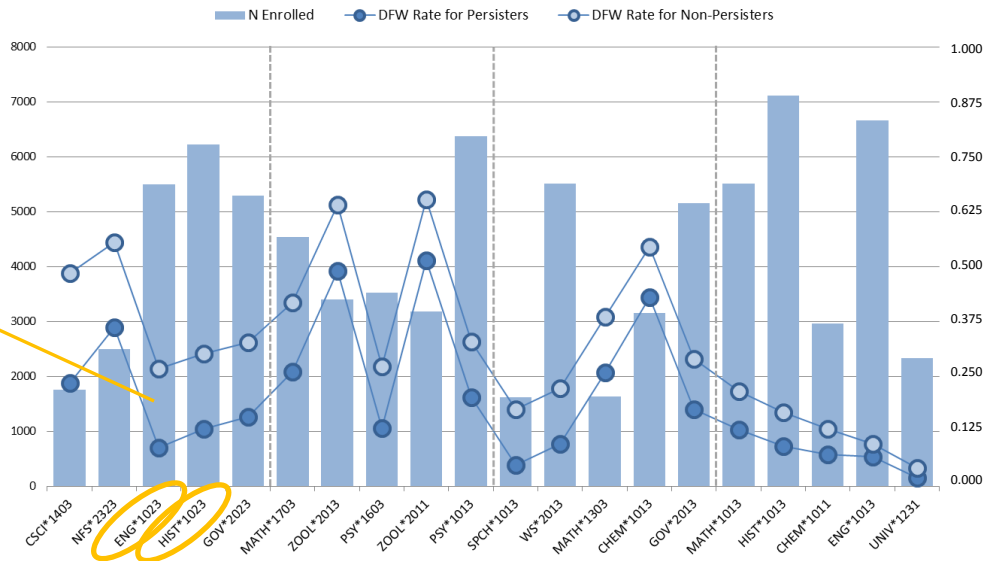
4 The Grade Threshold acts as barrier to persistence:
Where does it exist by course and by sub-population?

SORTED BY DFW RATE DIFFERENCE

DFW | All Cohorts | All Majors | Middle GPA | S1-S4

1

This is the same slide as before, showing the DFW rates for Middle GPA persisters and non-persisters. In English 1023, for example, the DFW rate for persisters is 8.7% compared to 26.6% for non-persisters, a difference of 17.9%.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 31 of 34



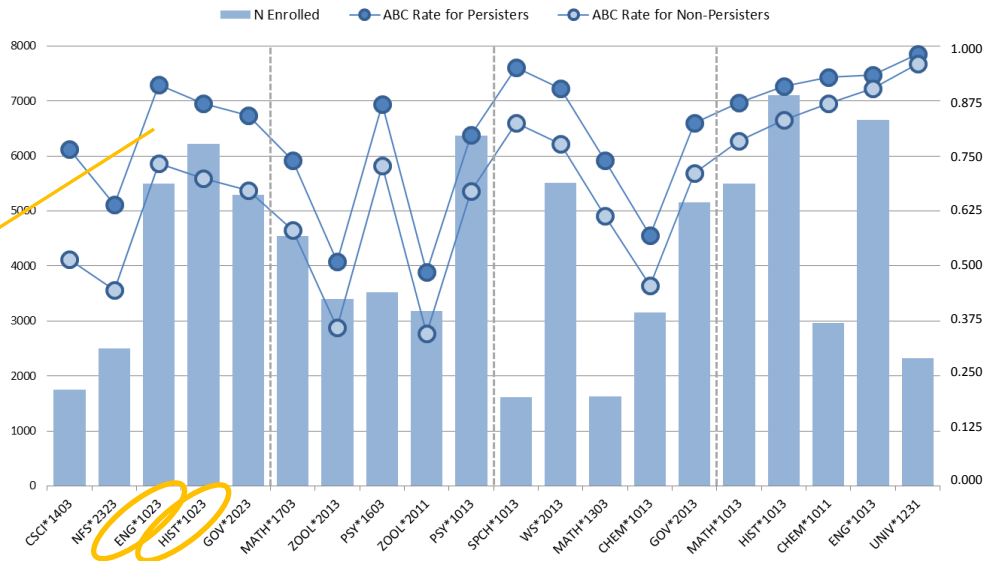
TEXAS WOMAN'S
UNIVERSITY™

Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

SORTED BY DFW RATE DIFFERENCE

ABC | All Cohorts | All Majors | Middle GPA | S1-S4

1
The ABC rate analysis is the complement, or mirror image, to the DFW analysis and yields the same rank order difference and the same conclusion. Using English 1023 again, the ABC rate for persisters is 91.3% compared to 73.4% for non-persisters, a difference of 17.9%, the same difference as before.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-12-06)

Page 32 of 34



TEXAS WOMAN'S
UNIVERSITY™

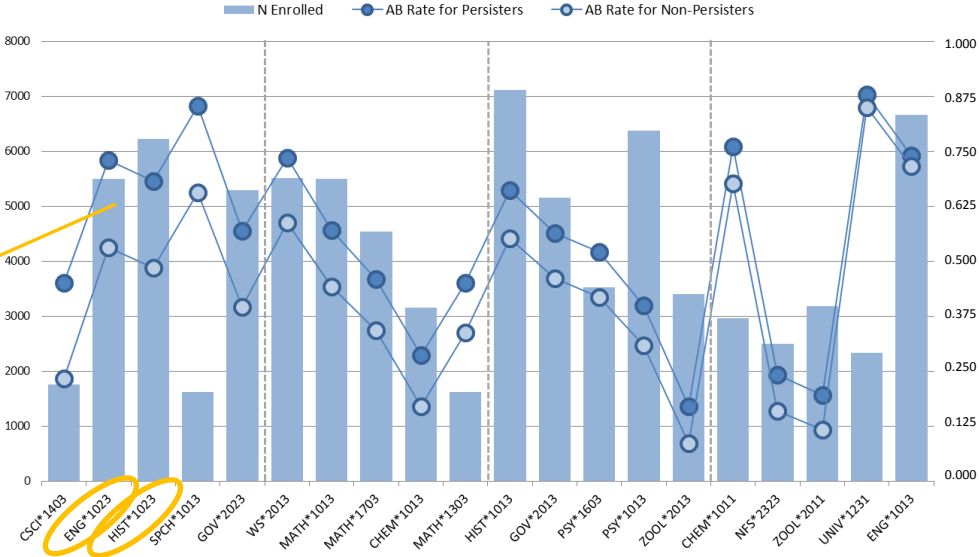
Office of Institutional Research and Improvement
contact | mstankey1@twu.edu | (940) 898-3350

SORTED BY DFW RATE DIFFERENCE

AB | All Cohorts | All Majors | Middle GPA | S1-S4

1

As noted earlier, it's possible that the gateway grade could be higher than a C. In English 1023, the AB rate for persisters is 68.3% compared to 48.5% for non-persisters, a difference of 19.8%, nearly 2% higher than for ABC. The gateway grade for Middle GPA students in English 1023 is more likely to be a B, not a C.



2

English 1023 and History 1023, most typically taken during a student's second semester, emerge as good gateway course candidates for students at TWU, especially when using first semester GPA as the grouping variable.

Low S1 GPA students need to earn at least a C to improve persistence chances, while Middle S1 GPA students need to earn at least a B.



Gateway Course Redefined

A gateway course is one in which a threshold grade highly discriminates between persisters and non-persisters and acts as a barrier to progress toward graduation.

Focus on identifying “success” grade levels, with the knowledge that the minimum grade required may vary by course and by student sub-population.

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, “Toward an Integrated Model of College Student Success: The Murky Gateway” (Texas Woman’s University, 2017-12-06)

Page 34 of 34

Toward an Integrated Model of College Student Success:

The Murky Gateway

Mark S. Hamner, Ph.D.
Vice Provost for IR & Improvement
mhamner@twu.edu

Michael J. Stankey, Ph.D.
Director of Analytics
mstankey1@twu.edu

This work is licensed under a Creative Commons
Attribution-NonCommercial-ShareAlike 4.0 International License



Mark S. Hamner and Michael J. Stankey, "Toward an Integrated Model of College Student Success: The Murky Gateway" (Texas Woman's University, 2017-10-03)

Page 1 of 34

