

Minding the Grades

New Lessons Learned Building a Dashboard

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Background

- Founded in 1927
- Flagship of the University of Houston System
- Public, Research university
- 281 undergraduate, graduate and professional programs
- Fall 2023 enrollment: 46,676
- #1 NCAA Basketball Team Go Coogs!!





Background

- The IR Office's Responsibilities
- Dashboards from DW tables:
 - Statistical Handbook
 - By the Numbers
- DW has PeopleSoft data:
 - enrollment data from Summer 2000 onward
 - admissions data from Fall 2010 onward
 - CB data from Fall 2007 onward





Background

- DW is a collaboration between the data warehouse team and the IR Office.
- Last year course performance dashboard.
 - Focused on course attributes.
- This year, we focused on student characteristics and course performance.







Stage 1: What more did we want to show?

- Are there differences in performance based on the students in the course?
- Focus to look at student characteristics.
- Still course performance
- Looked to other universities for ideas and inspiration.

Learn from others!

1







Stage 2: New focus = New Challenges

- Change in focus meant changing how we approached the data.
- Some examples of the challenges:
 - Restructure the data.
 - Which student specific fields did we want to focus on
 - Grading policy changes due to COVID
 - Data clean-up

Make it a team effort!

2



Stage 3: Putting the data together

- Our Flow
 - Data preparation done in SAS
 - Logic shared with the data warehouse team.
 - Tableau extract created in a test environment.
 - Errors/issues ironed out iteratively
 - Tableau extract created in the production environment

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MODCLASS_DESCR
FTE_FEDERAL
COHORT_GROUP
FTIC_FLG
DEGR_FTIC_FLG

Obtain proof of concept in a statistical program!





Stage 3: Putting the data together

- Issues to Address:
 - Different characteristics based on student level
 - First Generation Status- incomplete data
 - Updating field to identify undergraduates as FTIC or Transfer



Test! Test! Test some more! And then test again!



Stage 4: Did our dashboard ideas work with the data?

- Iterative in nature
- Dashboard issues addressed through weekly Tableau meetings.
- Data issues addressed with the data warehouse team.

Are students overrepresented among DWIF rates?

Note: The 'DWIF/Over-under representation' column indicates whether the DWIF rate for each row is representative of the total enrollment. In the chart below, a pointing up triangle (\blacktriangle) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (\blacktriangledown) means that a given student group's representation among DWIF grades is lower than in enrollment.

	eristic 2					Student Level	
lassification • (Blank)	*					Undergraduate	
	Enrollm	ent Enrollment %	DWIF Count	DWIF %	DWIF Over/Under-	Semester	
	Co	unt Enrollment %	Dwir Count	DIVITE 76	representation	Fall 2023	
Freshman	29,4	18.3%	5,477	25.7%	A	C 11	
Sophomore	32,9	30 20.5%	5,040	23.7%	A	College	
Junior	41,6	97 26.0%	5,578	26.2%	A	(AII)	
Senior	54,7	42 34.1%	4,996	23.4%	▼	Department	
Post-Bacc	1,6	65 1.0%	219	1.0%		(AII)	
Grand Total	160,4	100.0%	21,310	100.0%	A	Subject	
						(AII)	
						Course	
						(AII)	
						Core	
						(AII)	

Be flexible! Deal with new issues as they arise!



Stage 4: Did our dashboard ideas work with the data?

- Some issues:
 - Creative chart choices
 - How much detail? (custom table)
 - Multiple metrics in one dashboard? (e.g., GPA, DWIF)
 - Trying different charts before settling on "the one."

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Be flexible! Your first chart may not be the quite right.





Stage 5: When creating a dashboard consider:

- Usefulness
- User-friendly
- Maintainability
- Aesthetics
- Understandability
- Calculated fields in Tableau vs data table.

Home	Studen	t Enrollment	FTIC Profi	le Degree	Retention a	and Graduation	Faculty Adn	nissions Degree Prog
At A Gla	ance Enrollr	ment Trends Co	olleges Reside	ncy Maps Minor	rs Custom Tab	le		
College (All)	•	Department (All)	Plan (All)	Acad	demic Career	Student Level	Undergrad/Grad (All)	•
Student C (All)	Classification •	Residency Group (All)	Gender (All)	Race	e/Ethnicity	New Admits (AII)	Full-Time/Part-Tim	*
JH in 4 All UH Stu	udents 🔻	Honors Students All UH Students	UH Exten	d T				
Enroll	lment Tre	ends: Total	Enrollmen	t				Select Measure Headcount •
	46,148		47,090	47,031		46,700	4 6,676	Group Comparison
40K								Semester Fall 💌
зок								Year (Multiple values)
20K								
LOK								Measure: Headcount
ОК								Trend: Total Enrollment Semester: Fall 2019, 2020, 2021 and 2 more
	Fall 2019 Fall 2		Fall 2020 Fall 2020	Fall 2021	2021	Fall 2022 Fall 2022	Fall 2023 Fall 2023	College: All Department: All Plan: All
		148	47,090		17,031	46,700	46,676	- Career: All
								Student Level: All Gender: All



Stage 6: Ensure that dashboards are maintained and updated?

- Have a maintenance plan.
 - Experienced in real time.
 - Develop documentation.
 - Identify the individuals responsible for the data source and the dashboard.
 - Be responsive to the feedback from actual users.

It's	never	reall	ly	over
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Dashboard Demo

• <u>Student Performance in Courses</u>



Contact:

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Any questions?













Student Performance in Courses by Classification





Student Performance in Courses by First Generation



At a glance	Student C	ourse Performa	ance Stude	nt Performance	DWIF and Er	rollment	Student Performa	nce Trend	Custon	n Table	H	UNIVERSITY HOUSTC
tudent P	eform	ance in Co	urses by	Classificat	ion					Choose Measure		
haracteristic 1		Characteristic	-							GPA 🔻		
lassification	•	Full-Time/Part-								Student Level		
										Undergraduate 🔹		
					Avg. GPA							
		0.50	1.00			0.50		0.50	4.00	Semester		
	0.00	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	Fall 2023 🔹		
Freshman							2.79 3.01			College		
										(AII) 🔻		
Sophomore							2.85 3.17			Descriptions		
										Department (AII)		
Junior							2.88 3.22			(All)		
										Subject		
Senior							3.09 3.3	3		(AII) 🔻		
										Courses		
Post-Bacc							3.06 3.27			Course		
										(AII) •		
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										Full-Time		
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										Measure: GPA Characteristic 1:		
										Classification		
										Characteristic 2: Full-		
										Time/Part-Time Student Level: Undergraduate		
										Semester: Fall 2023		
										College: All		
										Department: All Course: All		
										Course: All Core: All		







	Fall 2019		Fall 2020		Fall 2021		Fall 2022		Fall 2023	
	Enrl Count	Avg. GPA								
Female	14,691	3.59	14,634	3.69	15,567	3.58	15,579	3.59	16,128	3.60
Male	11,229	3.53	11,010	3.59	11,928	3.48	12,486	3.51	12,939	3.56
Grand Total	25,920	3.56	25,644	3.65	27,495	3.54	28,065	3.55	29,067	3.58



Are students overrepresented among DWIF rates?

The 'DWIF Over/under representation' column indicates whether the DWIF rate for each row is representative of the total enrollment. In the chart below, a pointing up triangle (**A**) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (**V**) means that a given student group's representation among DWIF grades is lower than in enrollment.

Characteristic 2						Student Level
▼ Full-Time/Part-Time	•					Undergraduate
	Enrl Count	Enrollment %	DWIF Count	DWIF %	DWIF Over/Under- representation	Semester Fall 2023
Full-Time	26,483	16.5%	4,821	22.6%	A	
Part-Time	2,940	1.8%	656	3.1%	▲	College
Full-Time	28,277	17.6%	4,025	18.9%	A	(AII)
Part-Time	4,653	2.9%	1,015	4.8%	▲	Department
Full-Time	35,049	21.8%	4,094	19.2%	•	(AII)
Part-Time	6,648	4.1%	1,484	7.0%	▲	Subject
Full-Time	42,938	26.8%	3,490	16.4%	•	(All)
Part-Time	11,804	7.4%	1,506	7.1%	•	V - V
Full-Time	891	0.6%	103	0.5%	•	Course
Part-Time	774	0.5%	116	0.5%		(AII)
	160,457	100.0%	21,310	100.0%	A	Core
	Full-Time/Part-Time Full-Time Part-Time Full-Time Part-Time Part-Time Part-Time Part-Time Full-Time	Full-Time/Part-Time Enrl Count Full-Time 26,483 Part-Time 2,940 Full-Time 2,940 Full-Time 2,940 Full-Time 2,940 Full-Time 2,940 Part-Time 2,940 Part-Time 2,940 Part-Time 4,653 Part-Time 35,049 Part-Time 6,648 Full-Time 42,938 Part-Time 11,804 Full-Time 891 Part-Time 774	Full-Time/Part-Time EnrI Count Enrollment % Full-Time 26,483 16.5% Part-Time 2,940 1.8% Full-Time 2,940 1.8% Full-Time 28,277 17.6% Part-Time 28,277 12.8% Full-Time 35,049 21.8% Part-Time 6,648 4.1% Full-Time 42,938 26.8% Part-Time 11,804 7.4% Full-Time 891 0.6% Part-Time 774 0.5%	Full-Time/Part-Time EnrI Count Enrollment % DWIF Count Full-Time 26,483 16.5% 4,821 Part-Time 2,940 1.8% 656 Full-Time 28,277 17.6% 4,025 Part-Time 28,277 17.6% 4,025 Part-Time 35,049 21.8% 4,094 Part-Time 6,648 4.1% 1,484 Full-Time 42,938 26.8% 3,490 Part-Time 11,804 7.4% 1,506 Part-Time 891 0.6% 103 Part-Time 774 0.5% 116	Full-Time/Part-Time EnrI Count EnrolIment % DWIF Count DWIF % Full-Time 26,483 16.5% 4,821 22.6% Part-Time 2,940 1.8% 656 3.1% Full-Time 2,940 1.8% 656 3.1% Full-Time 28,277 17.6% 4,025 18.9% Part-Time 4,653 2.9% 1,015 4.8% Part-Time 35,049 21.8% 4,094 19.2% Part-Time 6,648 4.1% 1,484 7.0% Part-Time 42,938 26.8% 3,490 16.4% Part-Time 11,804 7.4% 1,506 7.1% Part-Time 891 0.6% <t< td=""><td>Full-Time/Part-Time Enrol Count Enrol Iment% DWIF Count DWIF % DWIF Over/Under-representation Full-Time 26,483 16.5% 4,821 22.6% ▲ Part-Time 26,483 16.5% 4,821 22.6% ▲ Part-Time 29,40 1.8% 665 3.1% ▲ Full-Time 28,277 17.6% 4,025 18.9% ▲ Full-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 6,648 2.9% 1,015 4.8% ▲ Part-Time 6,648 4.1% 1,484 7.0% ▲ Part-Time 42,938 26.8% 3,490 16.4% ▼ Part-Time 11,804 7.4% 1,506 7.1% ▼ Part-Time 891 0.6% 103 0.5% ▲ Part-Time 774 0.5% 116 <</td></t<>	Full-Time/Part-Time Enrol Count Enrol Iment% DWIF Count DWIF % DWIF Over/Under-representation Full-Time 26,483 16.5% 4,821 22.6% ▲ Part-Time 26,483 16.5% 4,821 22.6% ▲ Part-Time 29,40 1.8% 665 3.1% ▲ Full-Time 28,277 17.6% 4,025 18.9% ▲ Full-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 28,277 17.6% 4,025 18.9% ▲ Part-Time 6,648 2.9% 1,015 4.8% ▲ Part-Time 6,648 4.1% 1,484 7.0% ▲ Part-Time 42,938 26.8% 3,490 16.4% ▼ Part-Time 11,804 7.4% 1,506 7.1% ▼ Part-Time 891 0.6% 103 0.5% ▲ Part-Time 774 0.5% 116 <



Characteristic 1: Classification Characteristic 2: Full-Time/Part-Time Student Level: Undergraduate Semester: Fall 2023 College: All Department: All Course: All Core: All





The 'DWIF Over/under representation' column indicates whether the DWIF rate for each row is representative of the total enrollment. In the chart below, a pointing up triangle (**A**) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (**V**) means that a given student group's representation among DWIF grades is lower than in enrollment.

Characteristic 1	Characteristic 2	٦					Student Level
Gender	Race/Ethnicity						Graduate •
		Enrl Count	Enrollment %	DWIF Count	DWIF %	DWIF Over/Under-	Semester
		Enricount	Enrollment 30	DWIF Counc	DIVIT 70	representation	Fall 2023 🔹
Female	African American	2,020	6.9%	94	11.3%	A	C 11
	Asian American	3,185	11.0%	67	8.1%	•	College
	Hispanic	3,018	10.4%	114	13.7%	A	(AII)
	International	3,111	10.7%	38	4.6%	•	Department
	Other	591	2.0%	9	1.1%	•	(AII)
	White	4,203	14.5%	88	10.6%	•	Subject
Male	African American	916	3.2%	60	7.2%	A	(AII)
	Asian American	1,820	6.3%	51	6.1%		
	Hispanic	1,763	6.1%	78	9.4%		Course
	International	4,660	16.0%	118	14.2%	•	(AII) •
	Other	481	1.7%	22	2.6%		Core
	White	3,299	11.3%	93	11.2%	•	(AII)
Grand Total		29,067	100.0%	832	100.0%	A	



Characteristic 1: Gender Characteristic 2: Race/Ethnicity Student Level: Graduate Semester: Fall 2023 College: All Department: All Course: All Core: All



Create a Custom Table

Dimension 1		Dimension 2		Dimension 3			
Gender	•	FTIC/Transfer	•	Full-Time/Part-Time	•		

							Student Level	
			Fall 2	022	Fall 2	2023	Undergraduate	
			Enrl Count	DWIF	Enrl Count	DWIF	College	
Female	FTIC	Full-Time	45,713	13.53%	47,347	10.84%	(AII)	,
		Part-Time	4,337	20.89%	4,267	16.93%	Description	
		Total	50,050	14.16%	51,614	11.34%	Department (AII)	
	TRANSFER	Full-Time	24,013	14.71%	24,162	12.34%		
		Part-Time	8,461	21.40%	8,274	16.93%	Core	
		Total	32,474	16.45%	32,436	13.51%	(AII)	
	Tota/		83,095	15.01%	84,540	12.16%	Gender	
Male	FTIC	Full-Time	37,770	15.26%	38,896	12.28%	(AII)	
		Part-Time	4,890	26.00%	4,706	19.31%	Race/Ethnicity	
		Total	42,660	16.48%	43,602	13.03%	(AII)	
	TRANSFER	Full-Time	22,167	16.58%	22,708	12.62%	Full-Time/Part-Time	
		Part-Time	9,473	21.69%	9,181	16.75%	(AII)	,
		Total	31,640	18.10%	31,889	13.81%		
	Total		74,834	17.16%	75,917	13.35%	First Generation	
Grand Total			157,929	16.03%	160,457	12.72%	(AII)	

Choose Measure

•

Semester (Multiple values)



Dimension 1: Gender Dimension 2: FTIC/Transfer Dimension 3: FUII-Time/Part-Time Measure: DWIF Semester: Fall 2022 & Fall 2023 College: All Department :All Student Level: Undergraduate Race/Ethnciity: All FuII-Time: All Gender: All Core: All

Dimension 1	Dimension 2	Dimension 3					Semester
Classification	▼ Gender	▼ Full-Time/Part-Time	•				(Multiple values)
					1		Student Level
				2022	Fall		Graduate
			Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	
Doctoral	Female	Full-Time	2,278	3.81	2,254	3.79	College
		Part-Time	424	3.80	409	3.91	(AII)
		Total	2,702	3.81	2,663	3.81	Description
	Male	Full-Time	2,566	3.73	2,786	3.72	Department
		Part-Time	296	3.83	288	3.86	(AII)
		Total	2,862	3.74	3,074	3.73	Core
	Total		5,564	3.78	5,737	3.77	(AII)
Law	Female	Full-Time	1,696	3.39	1,802	3.37	
		Part-Time	166	3.30	169	3.27	Gender
		Total	1,862	3.38	1,971	3.36	(AII)
	Male	Full-Time	1,425	3.36	1,470	3.36	Race/Ethnicity
	Wale	Part-Time	155	3.30	143	3.27	(AII)
		Total	1,580	3.35	1,613	3.35	(60)
	Total		3,442	3.37	3,584	3.36	Full-Time/Part-Time
Masters	Female	Full-Time	5,226	3.68	4,849	3.72	(AII)
		Part-Time	1,999	3.69	2,031	3.73	
		Tota/	7,225	3.68	6,880	3.72	First Generation
	Male	Full-Time	4,667	3.52	4,484	3.61	(AII)
		Part-Time	1,578	3.55	1,608	3.60	
		Total	6,245	3.53	6,092	3.60	Dimension 1: Classif
	Total		13,470	3.61	12,972	3.67	Dimension 2: Gender Dimension 3: Full-
Med	Female	Full-Time			763		Time/Part-Time
		Total			763		Measure: GPA Semester: Fall 2022 8
	Male	Full-Time			404		2023
		Total			404		College: All
	Total	10031			1,167		Department :All Student Level:
Opt	Female	Full-Time	1.834	3.42	1,906	3.47	Undergraduate
opt	- Cillaic	Part-Time	32	3.37	1,500	3.33	Race/Ethnciity: All
		Partennie	32	3.37	10	5.55	Full-Time: All Gender: All



Create a Custom Table

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Choose Measure

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