



Minding the Grades

New Lessons Learned Building a Dashboard

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Background

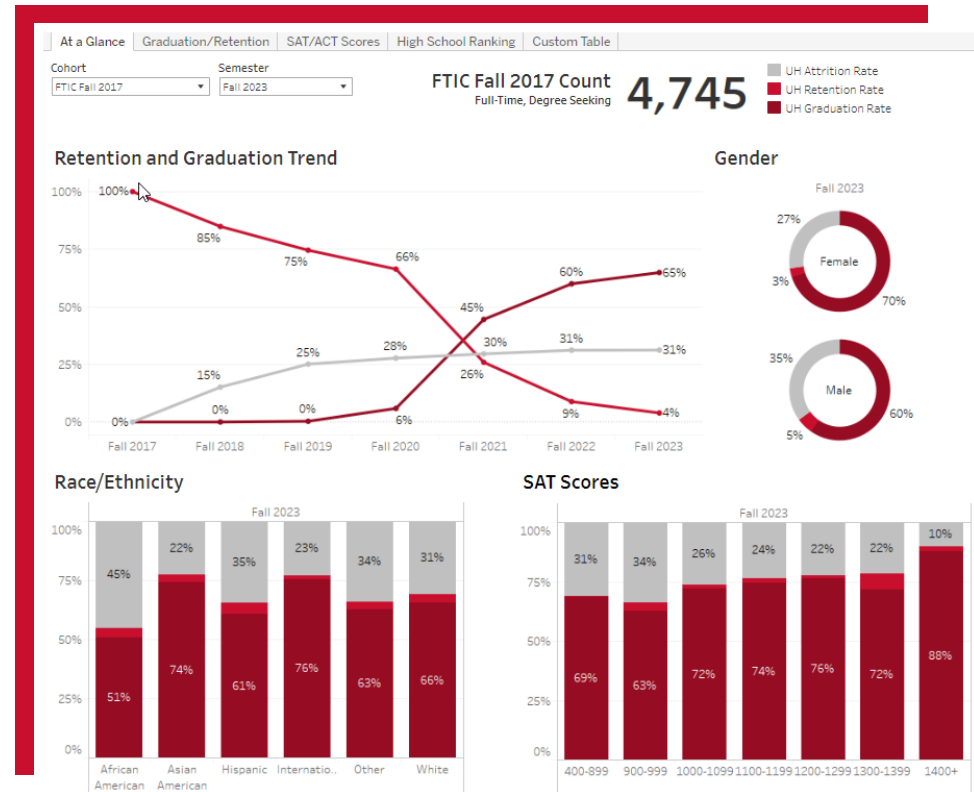
- Founded in 1927
- Flagship of the University of Houston System
- Public, Research university
- 281 undergraduate, graduate and professional programs
- Fall 2023 enrollment: 46,676
- **#1 NCAA Basketball Team**

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

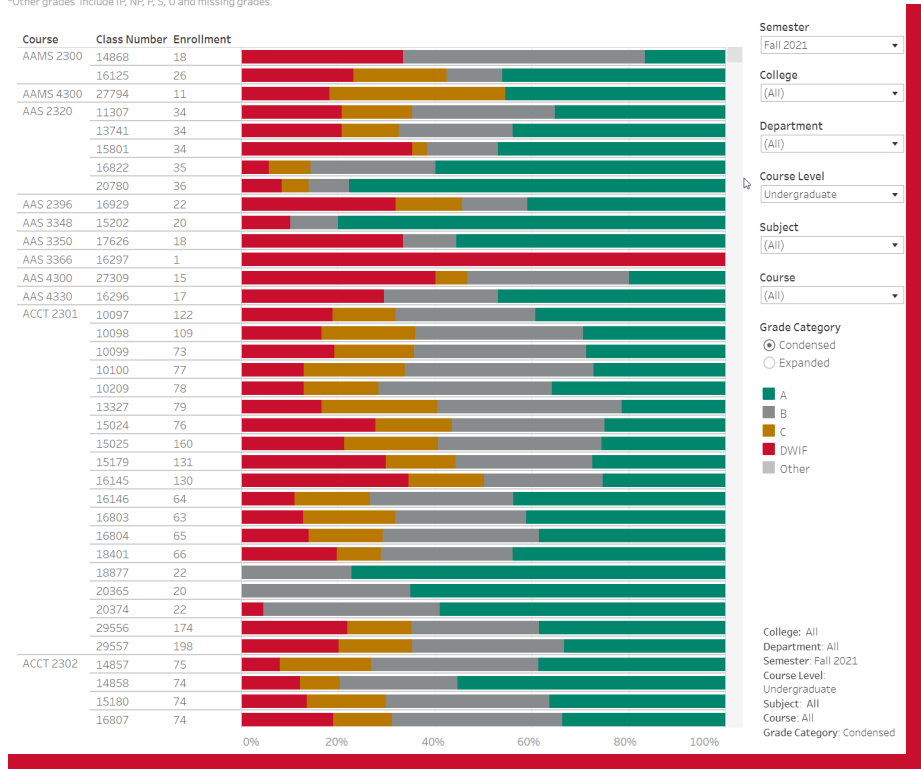


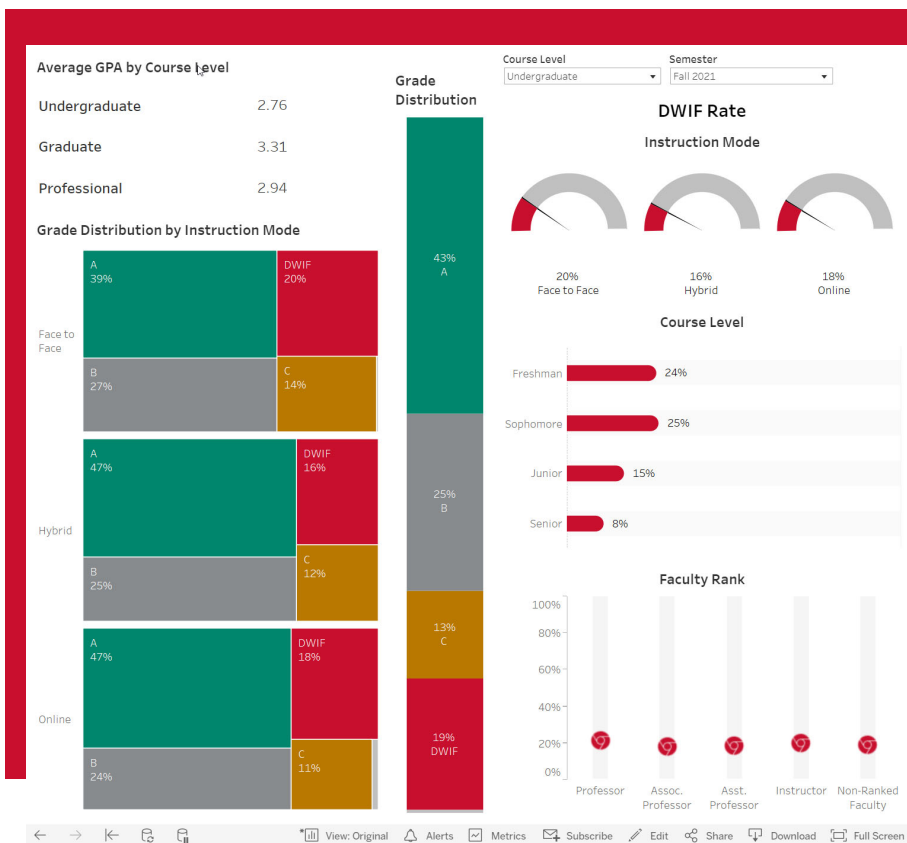
Background

- 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.

Course Grade Distribution (Condensed)

*Other grades include IP, NP, P, S, U and missing grades.





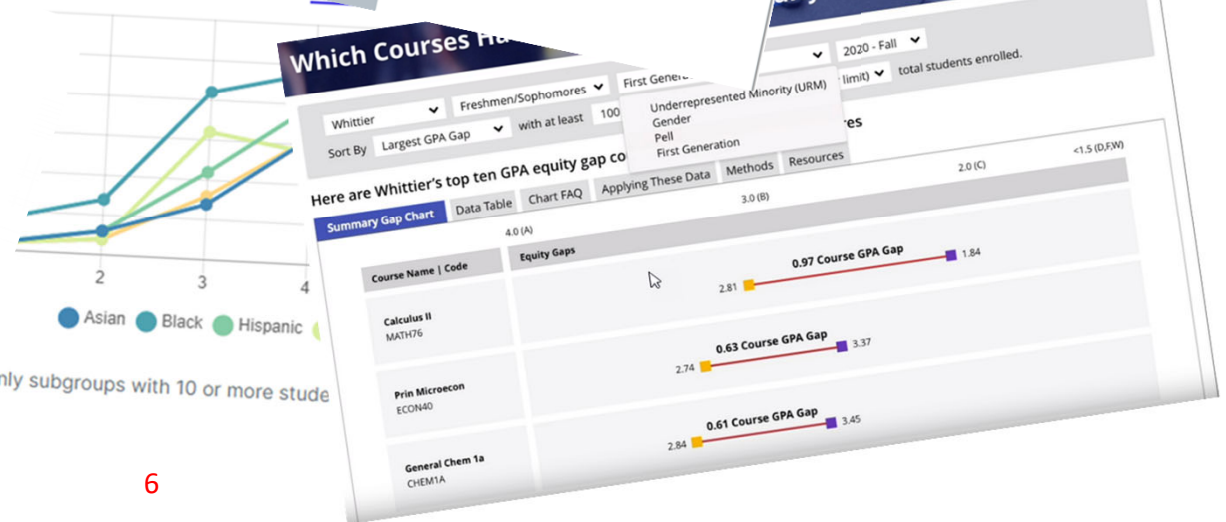
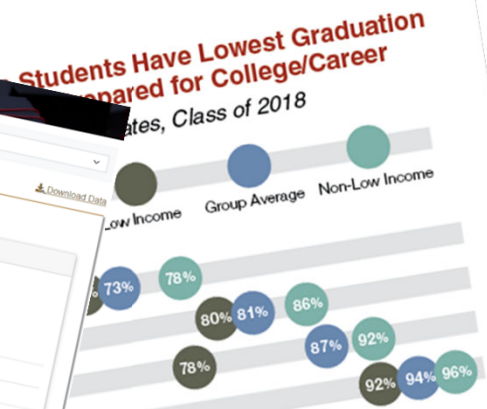
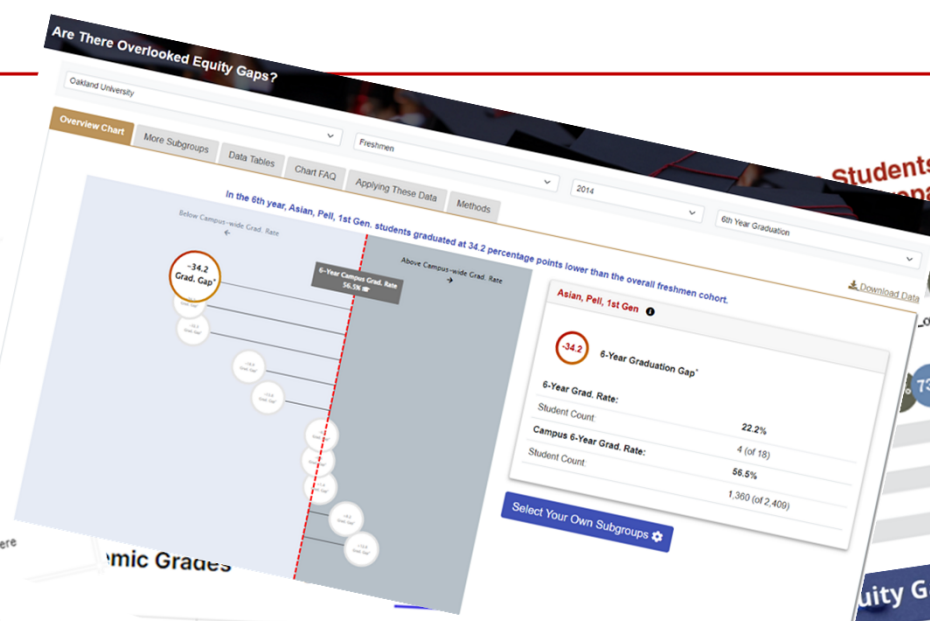
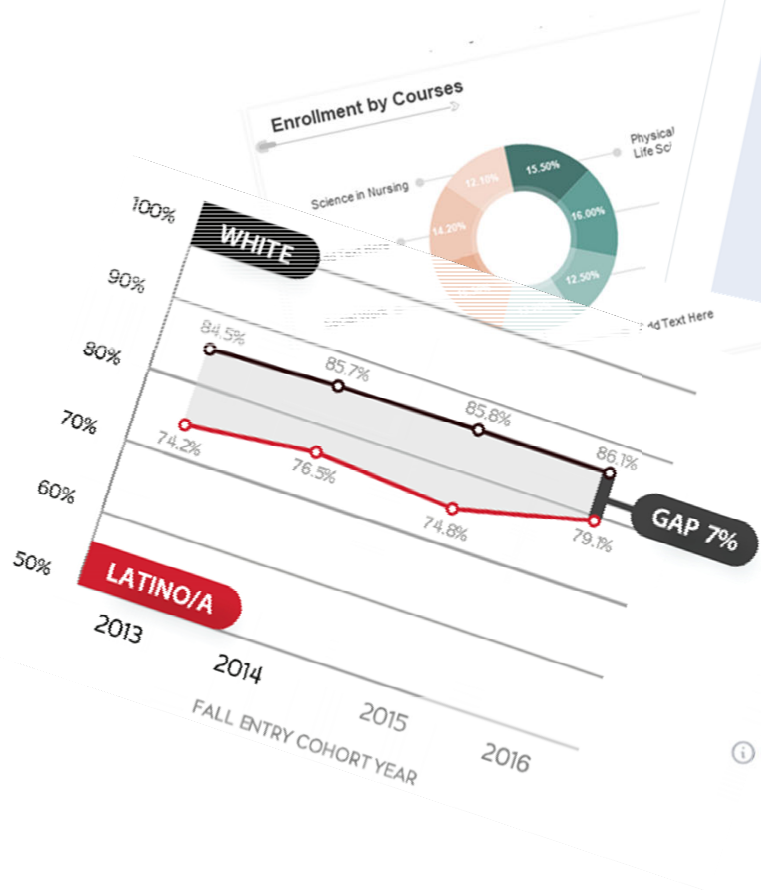
Stage 1: What more did we want to show?

- 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.

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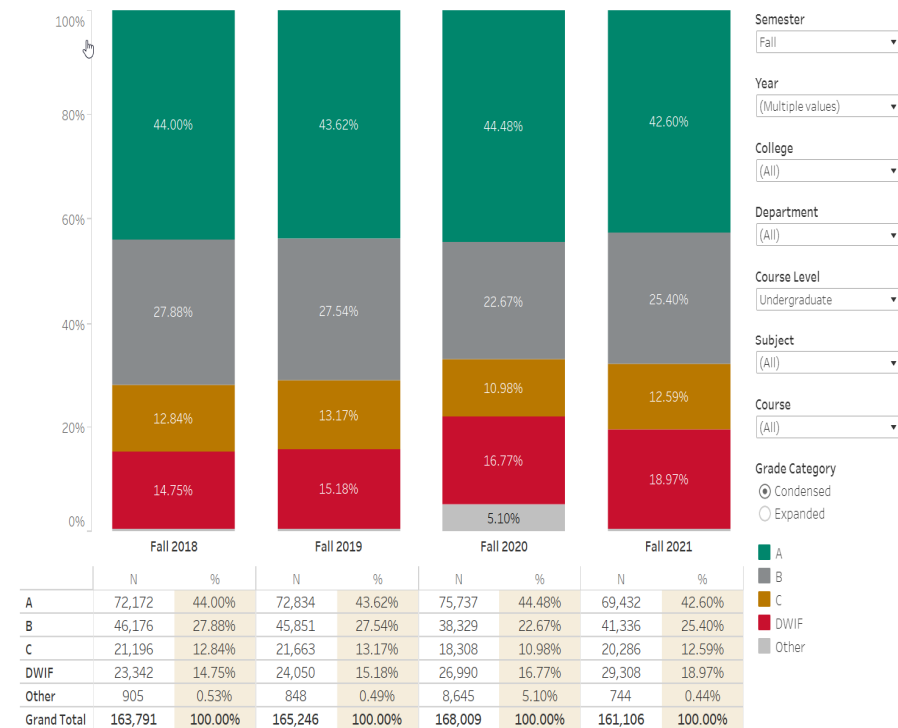
Learn from others!

Examples we found:



Course Grade Distribution Trend (Condensed)

N is number of course enrollments, % is percent of total course enrollments



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

2

Make it a team effort!

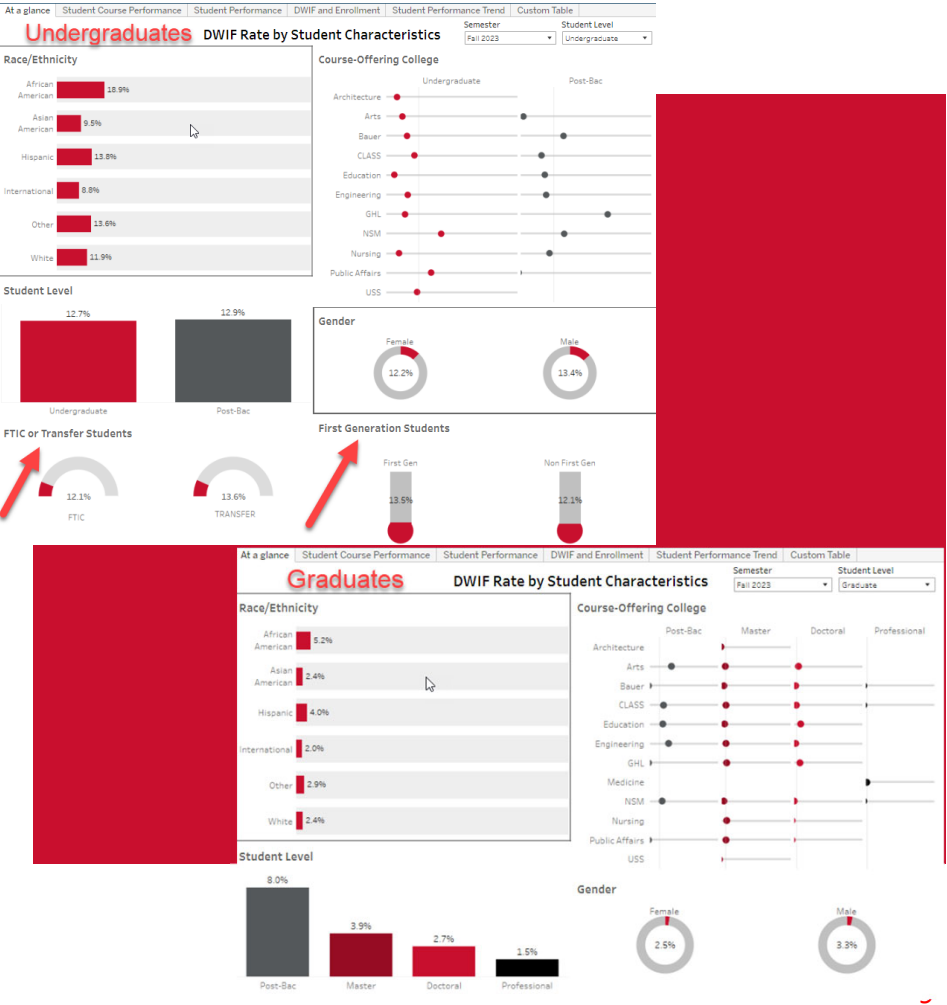
Stage 3: Putting the data together

- 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

EMPLID	
STRM	
INSTITUTION	
GENDER_CB1	
CB_STUDENT_LEVEL2_DESCR	
CB_STUDENT_LEVEL3_DESCR	
CB_STUDENT_LEVEL4_DESCR	
CB_STUDENT_LEVEL5_DESCR	
CB001_ACAD_CAREER	
AGE	
RESIDENCY_GROUP	
RESIDENCY_STATUS	
SCH_TOTAL	
FT_PT_FEDERAL	
STRM_DESCR	
CIP_CODE_CB1	
LAST_NAME_CB1	
FIRST_NAME_CB1	
NON_DEGR_SEEKING_STDNT	
HIGH_SCHOOL_CODE	
DERIVED_ETHNIC_GRP_CD_CB1	
DERIVED_ETHNIC_GRP_DESCR_CB1	
MODCLASS	
MODCLASS_DESCR	
FTE_FEDERAL	
COHORT_GROUP	
FTIC_FLG	
DEGR_FTIC_FLG	

3

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

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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 (▲) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (▼) means that a given student group's representation among DWIF grades is lower than in enrollment.

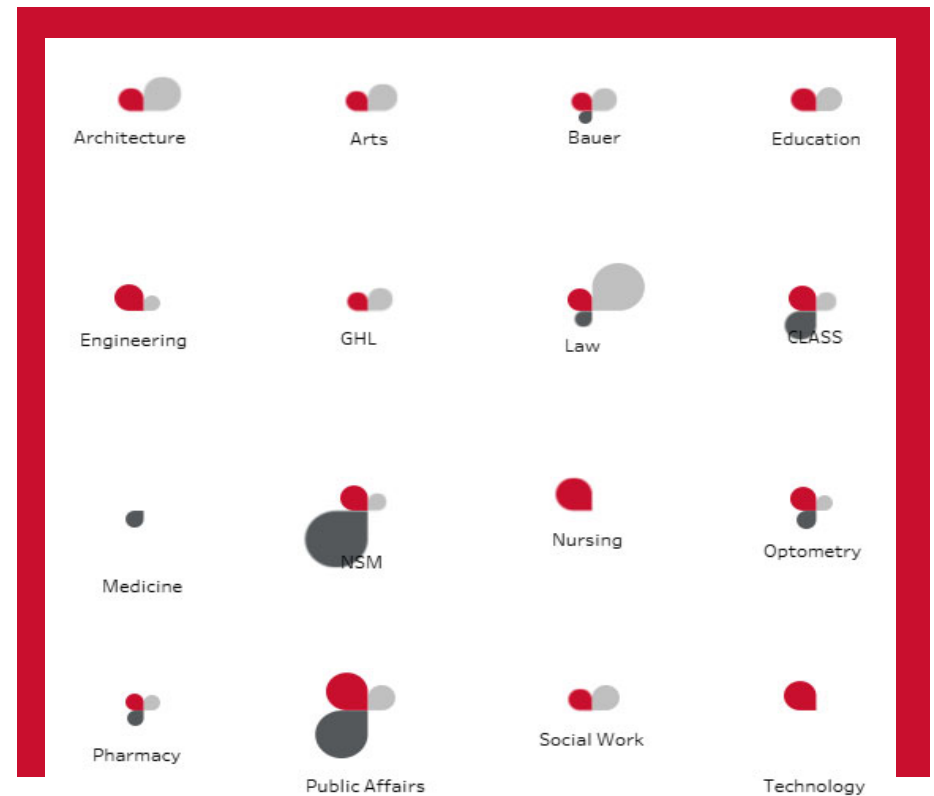
Characteristic 1	Characteristic 2	Enrollment Count	Enrollment %	DWIF Count	DWIF %	DWIF Over/Under-representation
Freshman		29,423	18.3%	5,477	25.7%	▲
Sophomore		32,930	20.5%	5,040	23.7%	▲
Junior		41,697	26.0%	5,578	26.2%	▲
Senior		54,742	34.1%	4,996	23.4%	▼
Post-Bacc		1,665	1.0%	219	1.0%	▼
Grand Total		160,457	100.0%	21,310	100.0%	▲

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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.”

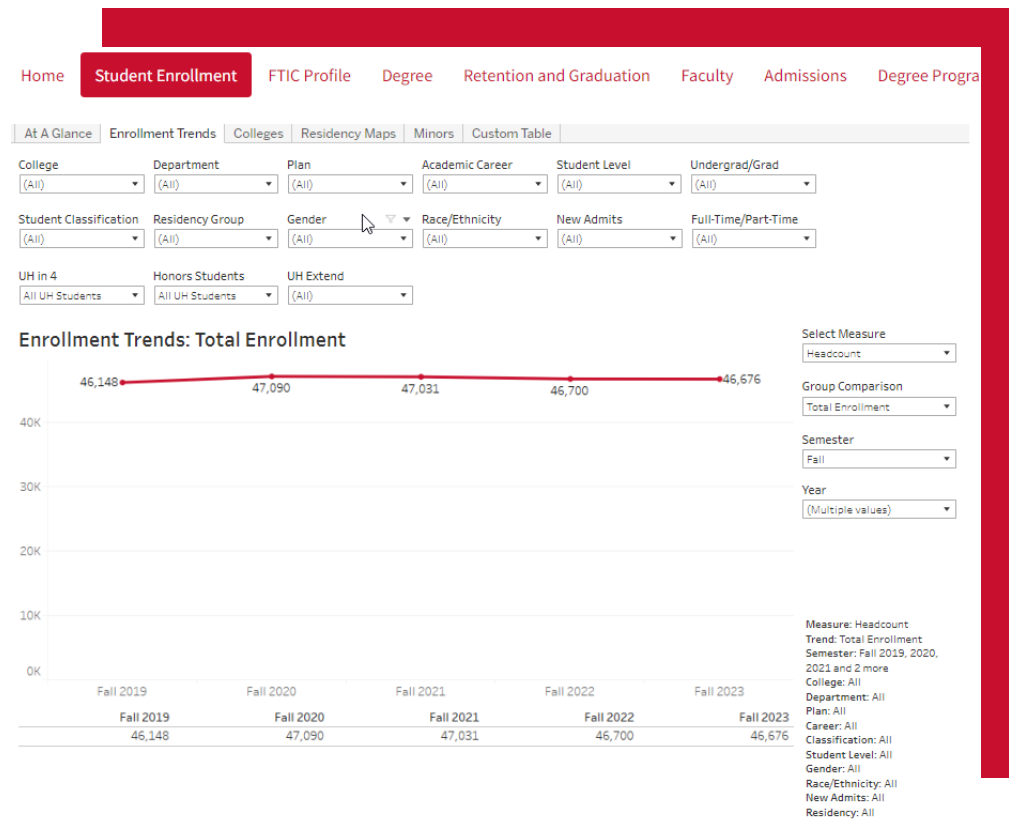


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Be flexible! Your first chart may not be the quite right.

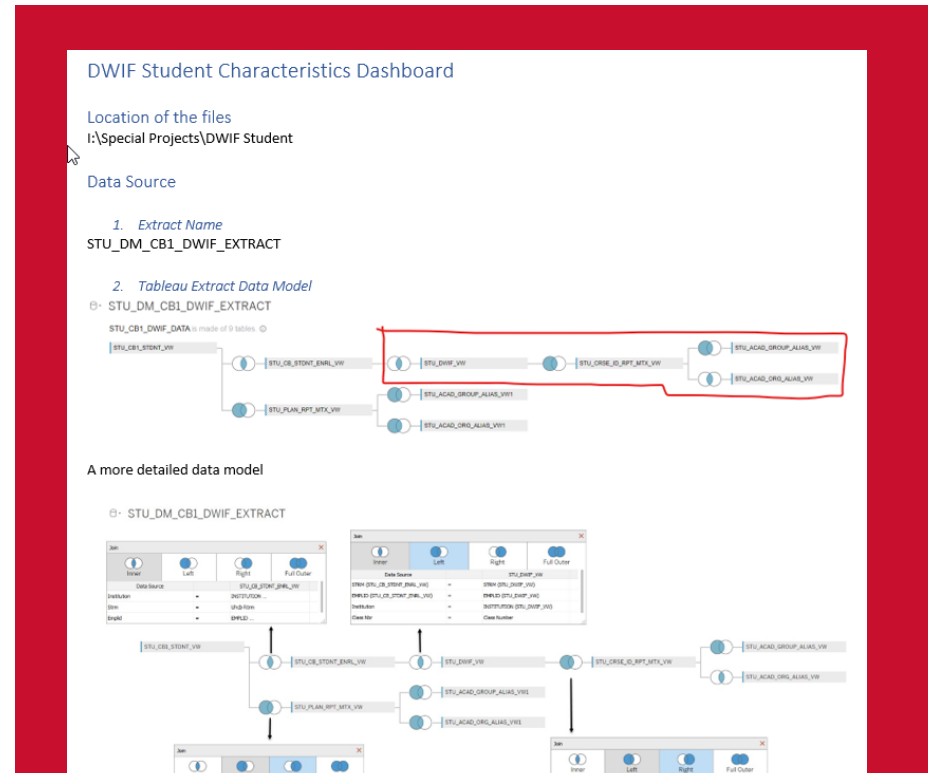
Stage 5: When creating a dashboard consider:

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



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.



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It's never really over!

Dashboard Demo

- [Student Performance in Courses](#)

Contact:

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Any questions?

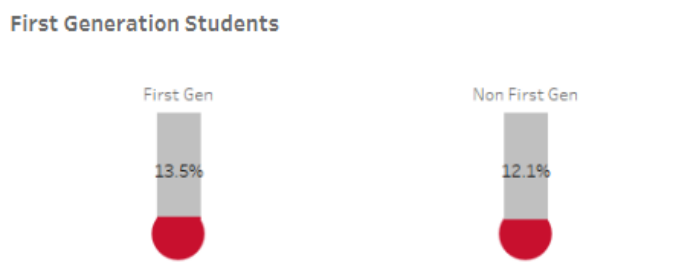
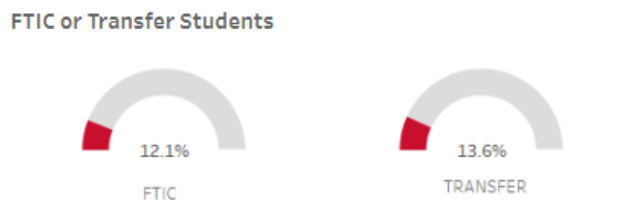
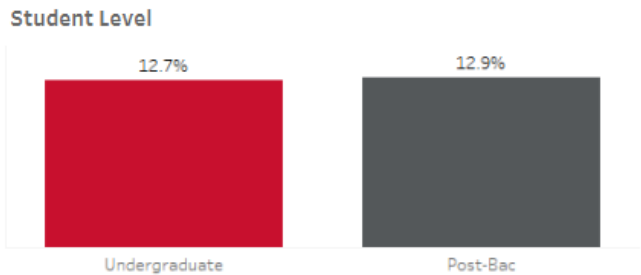
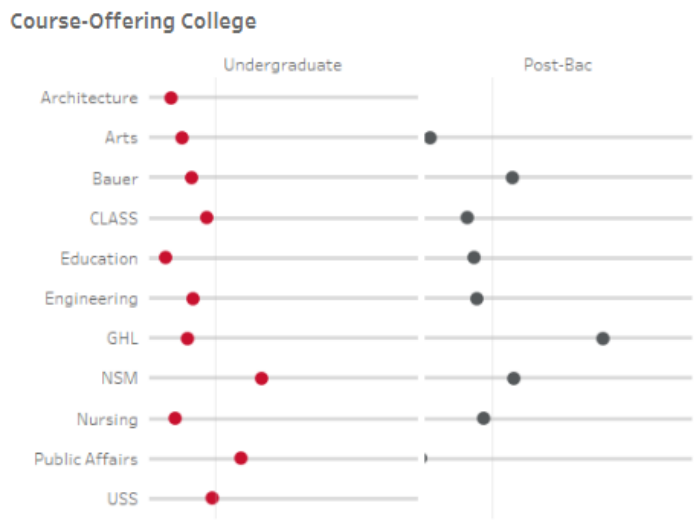
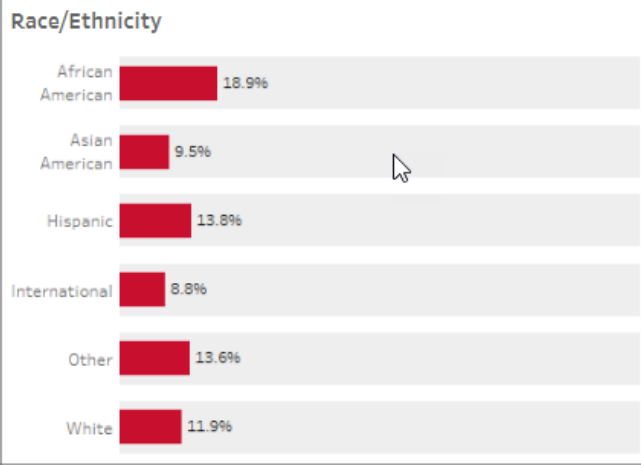


UH x   *For The City* **HOW SWEET IT IS.**

HOW SWEET IT IS IS THE OFFICIAL SLOGAN FOR THE REGIONAL NATIONAL TOURNAMENT TEAMS THAT PARTICIPATE IN THE SWEET SIXTEEN TOURNAMENT. HOW SWEET IT IS IS THE OFFICIAL SLOGAN OF THE UNIVERSITY OF HOUSTON.

DWIF Rate by Student Characteristics

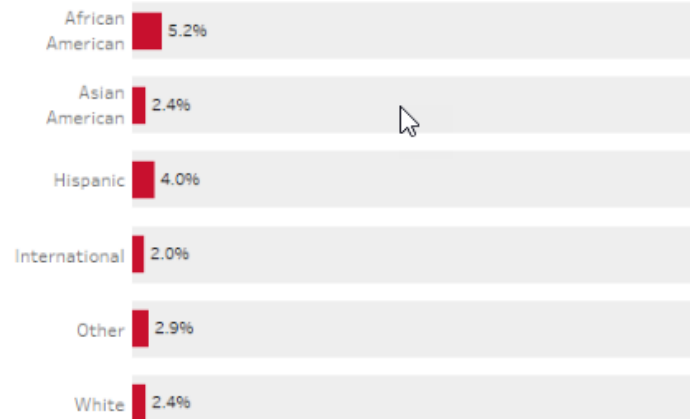
Semester: Student Level:



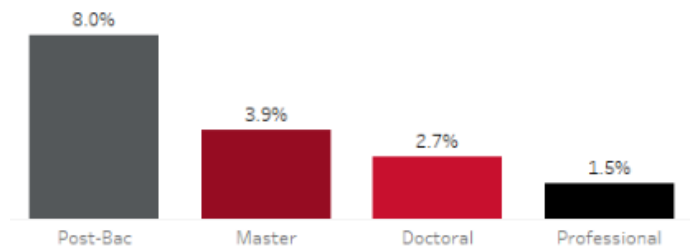
Semester: Student Level:

DWIF Rate by Student Characteristics

Race/Ethnicity



Student Level



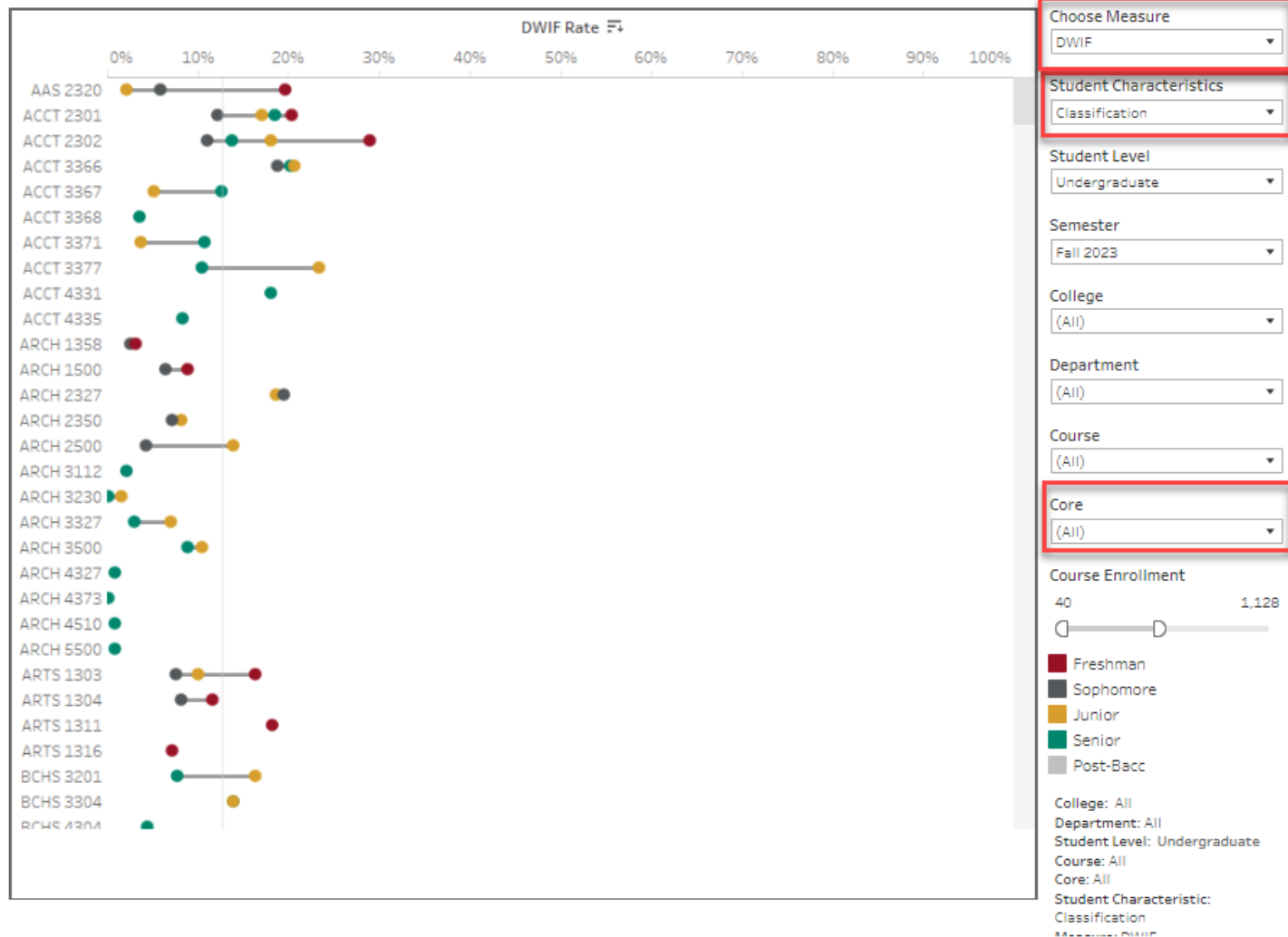
Course-Offering College



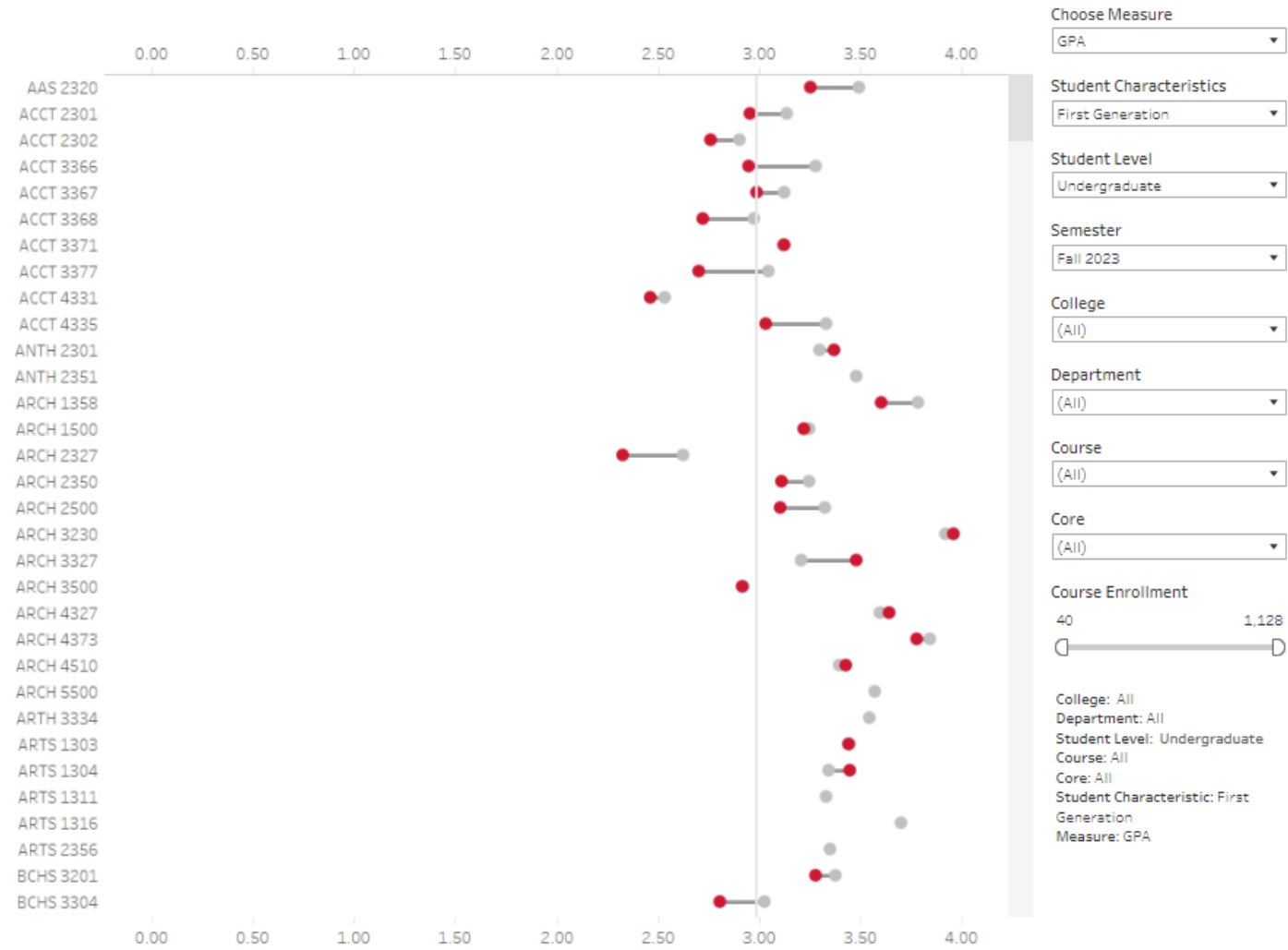
Gender



Student Performance in Courses by Classification



Student Performance in Courses by First Generation



Student Performance in Courses by Classification

Characteristic 1: Characteristic 2:

Choose Measure:

Student Level:

Semester:

College:

Department:

Subject:

Course:

Core:

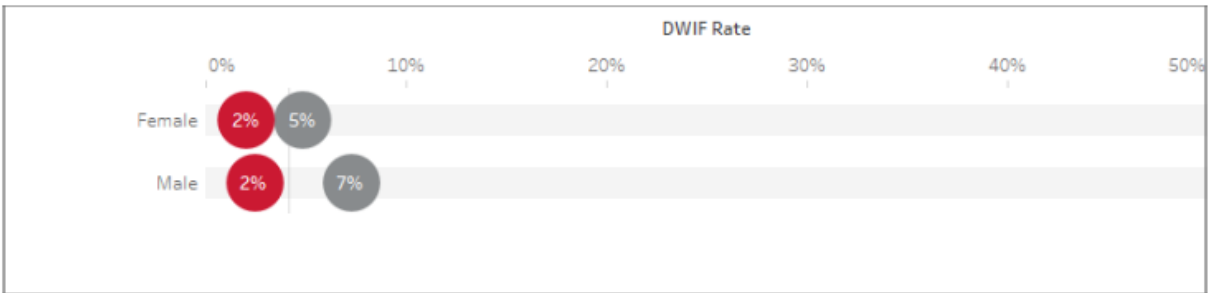


■ Full-Time
■ Part-Time

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

Student Performance in Courses by Gender

Characteristic 1: | Characteristic 2:



Choose Measure:

Student Level:

Semester:

College:

Department:

Subject:

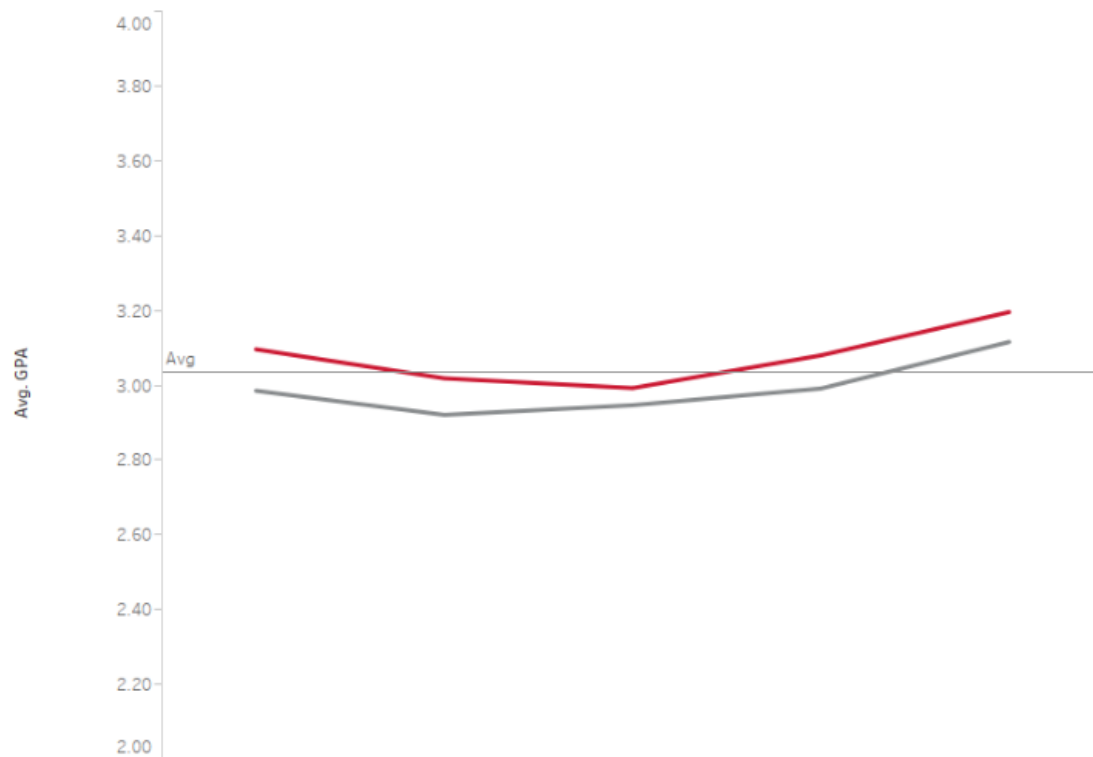
Course:

Core:

- Full-Time
- Part-Time

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

Trend for Student Performance in Courses



Choose Measure
 GPA

Student Characteristic
 FTIC/Transfer

Student Level
 Undergraduate

Semester
 (Multiple values)

College
 Natural Sciences & Math...

Department
 Chemistry

Subject
 CHEM

Course
 CHEM 1311

Core
 (All)

■ FTIC
 ■ TRANSFER

	Fall 2019		Fall 2020		Fall 2021		Fall 2022		Fall 2023	
	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA
FTIC	90,645	3.10	93,028	3.02	91,821	2.99	92,710	3.08	95,216	3.20
TRANSFER	72,858	2.98	71,926	2.92	66,459	2.95	64,114	2.99	64,325	3.12
Grand Total	165,316	3.05	166,739	2.98	159,615	2.98	157,929	3.05	160,457	3.16

Trend for Student Performance in Courses

Choose Measure

Student Characteristic

Student Level

Semester

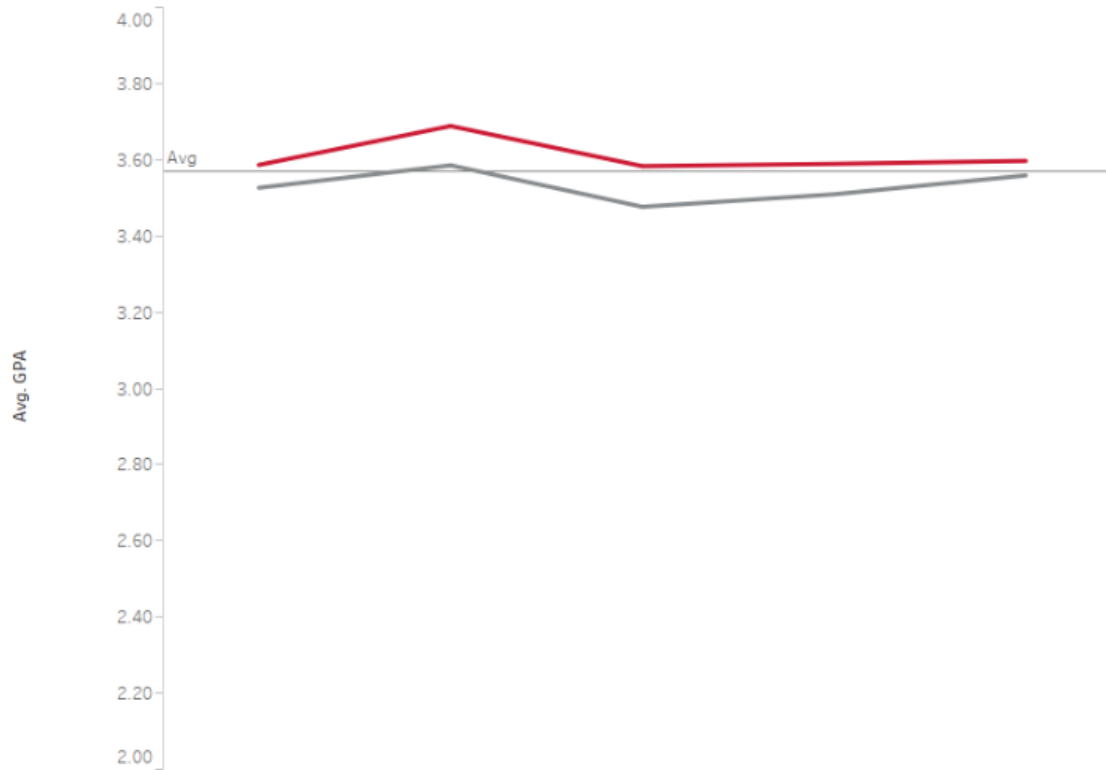
College

Department

Subject

Course

Core



Female
 Male

	Fall 2019		Fall 2020		Fall 2021		Fall 2022		Fall 2023	
	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	Enrl Count	Avg. GPA	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 (▲) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (▼) means that a given student group's representation among DWIF grades is lower than in enrollment.

Characteristic 1		Characteristic 2		Student Level		
Classification		Full-Time/Part-Time		Undergraduate		
		Enrl Count	Enrollment %	DWIF Count	DWIF %	DWIF Over/Under-representation
Freshman	Full-Time	26,483	16.5%	4,821	22.6%	▲
	Part-Time	2,940	1.8%	656	3.1%	▲
Sophomore	Full-Time	28,277	17.6%	4,025	18.9%	▲
	Part-Time	4,653	2.9%	1,015	4.8%	▲
Junior	Full-Time	35,049	21.8%	4,094	19.2%	▼
	Part-Time	6,648	4.1%	1,484	7.0%	▲
Senior	Full-Time	42,938	26.8%	3,490	16.4%	▼
	Part-Time	11,804	7.4%	1,506	7.1%	▼
Post-Bacc	Full-Time	891	0.6%	103	0.5%	▼
	Part-Time	774	0.5%	116	0.5%	▲
Grand Total		160,457	100.0%	21,310	100.0%	▲

Student Level: Undergraduate
 Semester: Fall 2023
 College: (All)
 Department: (All)
 Subject: (All)
 Course: (All)
 Core: (All)



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

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 (▲) indicates that a given student group's representation among DWIF grades is higher than their representation in enrollment while downward pointing triangle (▼) means that a given student group's representation among DWIF grades is lower than in enrollment.

Characteristic 1		Characteristic 2		Student Level		
Gender		Race/Ethnicity		Graduate		
		Enrl Count	Enrollment %	DWIF Count	DWIF %	DWIF Over/Under-representation
Female	African American	2,020	6.9%	94	11.3%	▲
	Asian American	3,185	11.0%	67	8.1%	▼
	Hispanic	3,018	10.4%	114	13.7%	▲
	International	3,111	10.7%	38	4.6%	▼
	Other	591	2.0%	9	1.1%	▼
	White	4,203	14.5%	88	10.6%	▼
Male	African American	916	3.2%	60	7.2%	▲
	Asian American	1,820	6.3%	51	6.1%	▼
	Hispanic	1,763	6.1%	78	9.4%	▲
	International	4,660	16.0%	118	14.2%	▼
	Other	481	1.7%	22	2.6%	▲
	White	3,299	11.3%	93	11.2%	▼
Grand Total		29,067	100.0%	832	100.0%	▲

Student Level: Graduate
 Semester: Fall 2023
 College: (All)
 Department: (All)
 Subject: (All)
 Course: (All)
 Core: (All)



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: Gender
 Dimension 2: FTIC/Transfer
 Dimension 3: Full-Time/Part-Time

Choose Measure: DWIF

Semester: (Multiple values)

Student Level: Undergraduate

College: (All)

Department: (All)

Core: (All)

Gender: (All)

Race/Ethnicity: (All)

Full-Time/Part-Time: (All)

First Generation: (All)

			Fall 2022		Fall 2023	
			Enrl Count	DWIF	Enrl Count	DWIF
Female	FTIC	Full-Time	45,713	13.53%	47,347	10.84%
		Part-Time	4,337	20.89%	4,267	16.93%
		<i>Total</i>	50,050	14.16%	51,614	11.34%
	TRANSFER	Full-Time	24,013	14.71%	24,162	12.34%
		Part-Time	8,461	21.40%	8,274	16.93%
		<i>Total</i>	32,474	16.45%	32,436	13.51%
<i>Total</i>		83,095	15.01%	84,540	12.16%	
Male	FTIC	Full-Time	37,770	15.26%	38,896	12.28%
		Part-Time	4,890	26.00%	4,706	19.31%
		<i>Total</i>	42,660	16.48%	43,602	13.03%
	TRANSFER	Full-Time	22,167	16.58%	22,708	12.62%
		Part-Time	9,473	21.69%	9,181	16.75%
		<i>Total</i>	31,640	18.10%	31,889	13.81%
<i>Total</i>		74,834	17.16%	75,917	13.35%	
<i>Grand Total</i>		157,929	16.03%	160,457	12.72%	

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



Create a Custom Table

Dimension 1: | Dimension 2: | Dimension 3:

Choose Measure:

Semester:

Student Level:

College:

Department:

Core:

Gender:

Race/Ethnicity:

Full-Time/Part-Time:

First Generation:

Dimension 1: Classification
 Dimension 2: Gender
 Dimension 3: Full-Time/Part-Time
 Measure: GPA
 Semester: Fall 2022 & Fall 2023
 College: All
 Department: All
 Student Level: Undergraduate
 Race/Ethnicity: All
 Full-Time: All
 Gender: All
 Core: All

			Fall 2022		Fall 2023	
			Enrl Count	Avg. GPA	Enrl Count	Avg. GPA
Doctoral	Female	Full-Time	2,278	3.81	2,254	3.79
		Part-Time	424	3.80	409	3.91
		<i>Total</i>	2,702	3.81	2,663	3.81
	Male	Full-Time	2,566	3.73	2,786	3.72
		Part-Time	296	3.83	288	3.86
<i>Total</i>		2,862	3.74	3,074	3.73	
Law	Female	Full-Time	1,696	3.39	1,802	3.37
		Part-Time	166	3.30	169	3.27
		<i>Total</i>	1,862	3.38	1,971	3.36
	Male	Full-Time	1,425	3.36	1,470	3.36
		Part-Time	155	3.30	143	3.27
<i>Total</i>		3,442	3.37	3,584	3.36	
Masters	Female	Full-Time	5,226	3.68	4,849	3.72
		Part-Time	1,999	3.69	2,031	3.73
		<i>Total</i>	7,225	3.68	6,880	3.72
	Male	Full-Time	4,667	3.52	4,484	3.61
		Part-Time	1,578	3.55	1,608	3.60
<i>Total</i>		6,245	3.53	6,092	3.60	
Med	Female	Full-Time			763	
		<i>Total</i>			763	
	Male	Full-Time			404	
		<i>Total</i>			404	
<i>Total</i>				1,167		
Opt	Female	Full-Time	1,834	3.42	1,906	3.47
		Part-Time	32	3.37	18	3.33

