

# Surviving Surveys One Code at a Time



**TEXAS WOMAN'S**  
UNIVERSITY

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# About TWU

- Founded in 1901, TWU is a co-ed University, with the main campus located in Denton, and satellite campuses in Dallas and Houston.
- Largest University primarily for Women in the country

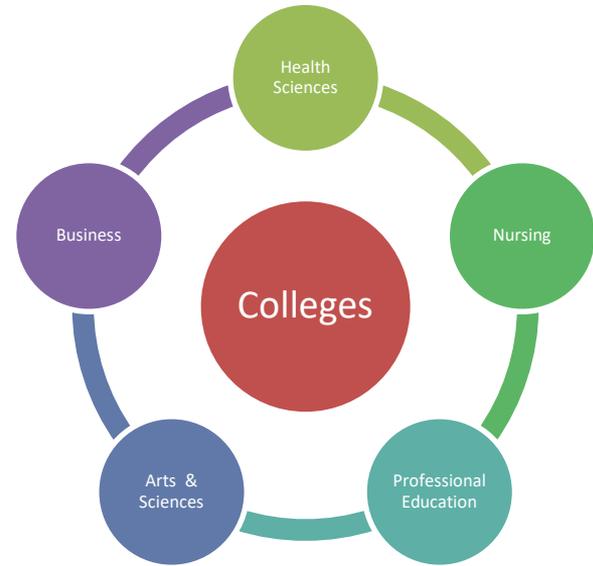
Enrollment: 15,826

- 88% Women, 12% Men
- 33% Graduate students
- 48% new undergraduate students are transfers



# Our Programs

- Comprised of 5 Colleges
- Bachelors, Masters, Doctoral degrees
  - 47, 50, 21 programs respectively (118 total)
- Nationally ranked in OT, PT, and Nursing by U.S. News & World Report's Best Colleges
- Only Ph.D Dance program in TX and one of 4 in the nation



# Our Office

- Located in Academic Affairs within Institutional Research and Improvement
- 4 full-time, 1 part-time staff dedicated to IR (Institutional Research and Data Management)
- All use SQL and most utilize SAS
- Responsible for data requests, data for grants, accreditation data support, surveys, course evaluations, advanced data analysis, federal and state reporting, data warehousing, and report visualization

That's us!



# What's the deal with surveys?



Three major types:

- Student surveys
- Faculty/staff surveys
- Institutional surveys

**Student surveys** are managed by our office. Some use outside administrators, such as SSI, NSSE, and MSL. Others are completely in-house, like course evaluations (joint effort between IT and IR). Basically, anything that asks a student for feedback is covered under this umbrella. Much like student surveys, **faculty/staff surveys** asks a faculty/staff member for feedback. Examples include administrator evaluations.

**Institutional surveys** are completed by our office. These are surveys that ask questions about the student make-up and measures that can be associated with students. Demographics, GPA and standardized testing information... Most common examples are the Common Data Set, U.S. News, and Peterson's. Anything that is asking for data that doesn't involve student feedback is considered to be institutional.

IPEDS and CBM reports also fall into this category. Survey completion relies on IT processes to populate tables prior to data manipulation.

# Let's focus on Institutional Surveys...

## PROS

- Great for **Recruiting** students
- Provide **benchmarking**
- Most ask for **similar data**

## CONS

- Can be **Tedious**
- Info is *just different enough* from others that I have to **re-run numbers**
- Can be **time consuming**

# Managing the Madness

- Surveys are only a part of what our office is responsible for. There's also:

**Advanced Analytics**

**Accreditation**

**Data Clean-up**

**Data Requests**

**Data for Grants**

**Data Warehousing**

**Data Visualization**

**Fact book**

**Other duties as assigned**

# Have no fear!

In the next 30 minutes, we will outline how our office uses SAS to automate as much survey information as possible, so that there's time to complete other necessary tasks.

The SAS skills represented in this presentation can also be applied to most of the other tasks that were presented on the previous slide.

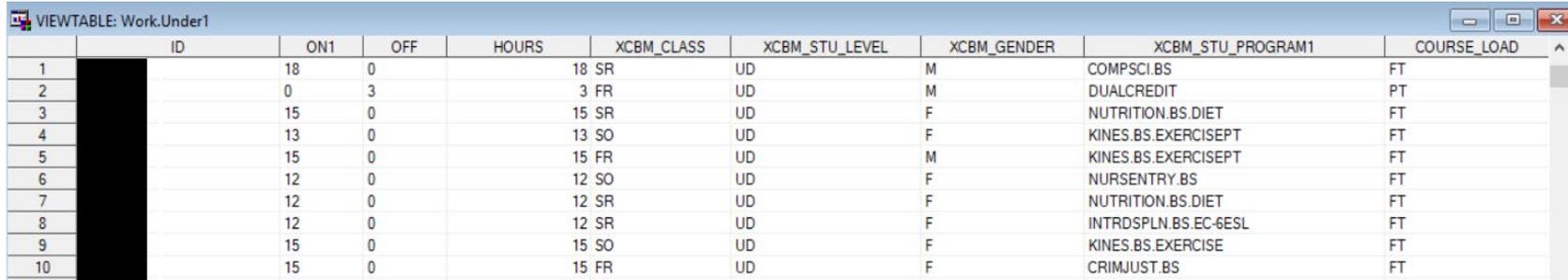
# Examples of Institutional surveys



# Let's get started!

- Compile the data using **Proc SQL** and write it to a table

```
PROC SQL;
Create table UNDER1 as
  Select * from connection to oracle
  (
SELECT DISTINCT SUBSTR(XCBM_ENROLL_ID,7,7) AS ID,
                XCBM_SCH_ON_CAMPUS AS ON1,
                XCBM_SCH_OFF_CAMPUS AS OFF,
                SUM(XCBM_SCH_ON_CAMPUS+XCBM_SCH_OFF_CAMPUS) AS HOURS,
                XCBM_CLASS,
                XCBM_STU_LEVEL,
                XCBM_GENDER,
                XCBM_STU_PROGRAM1,
                CASE WHEN SUM(XCBM_SCH_ON_CAMPUS+XCBM_SCH_OFF_CAMPUS) >= 12 THEN 'FT'
                       ELSE 'PT' END AS COURSE_LOAD
FROM COLLEAGUE.XCBM_ENROLL_VIEW
WHERE xcbm_term IN ('19/FA')
AND (XCBM_STU_LEVEL LIKE 'U%' OR XCBM_STU_LEVEL='PB')
```



ID	ON1	OFF	HOURS	XCBM_CLASS	XCBM_STU_LEVEL	XCBM_GENDER	XCBM_STU_PROGRAM1	COURSE_LOAD
1	18	0	18	SR	UD	M	COMPSCI.BS	FT
2	0	3	3	FR	UD	M	DUALCREDIT	PT
3	15	0	15	SR	UD	F	NUTRITION.BS.DIET	FT
4	13	0	13	SO	UD	F	KINES.BS.EXERCISEPT	FT
5	15	0	15	FR	UD	M	KINES.BS.EXERCISEPT	FT
6	12	0	12	SO	UD	F	NURSENTRY.BS	FT
7	12	0	12	SR	UD	F	NUTRITION.BS.DIET	FT
8	12	0	12	SR	UD	F	INTRDSPLN.BS.EC-6ESL	FT
9	15	0	15	SO	UD	F	KINES.BS.EXERCISE	FT
10	15	0	15	FR	UD	F	CRIMJUST.BS	FT

# If you don't have access to data directly...

- Request the data needed from the appropriate department, and read in the data using **proc import**.

```
|proc import datafile='X:\My Shared Folders\InstRschPlann\IPEDS\2018-2019\FTIC 18FA Cohort.xlsx' out=ipeds_ftic  
dbms=xlsx replace;  
sheet='FTIC';  
run;
```

# What if I need additional variables?

- Create a computed variable or conditional flags in **proc sql** or within a **data step**
  - The necessary coding efforts will determine which is easier to use.

```
DATA UNDER_FLAG1;|
LENGTH CATEGORY $25.;
SET UNDER_FLAG;
IF FTIC_FLAG='FTIC' THEN CATEGORY='FTIC';
IF FTIC_FLAG='NOT FTIC' AND XCBM_CLASS='FR' AND XCBM_STU_LEVEL='UD' THEN CATEGORY='OTHER FIRST YR,DS';
IF FTIC_FLAG='NOT FTIC' AND XCBM_CLASS NE 'FR' AND XCBM_STU_LEVEL='UD' AND XCBM_STU_PROGRAM1 NE 'DUALCREDIT' THEN CATEGORY='ALL OTHER DS';
IF FTIC_FLAG='NOT FTIC' AND XCBM_CLASS NE 'FR' AND XCBM_STU_LEVEL='PB' THEN CATEGORY='ALL OTHER DS';
IF FTIC_FLAG='NOT FTIC' AND XCBM_STU_LEVEL='UC' THEN CATEGORY='OTHER UNDER';
IF XCBM_STU_PROGRAM1='DUALCREDIT' THEN CATEGORY='OTHER UNDER';
IF XCBM_STU_LEVEL='UN' THEN CATEGORY='OTHER UNDER';
```

```
RUN;
```

# Output



VIEWTABLE: Work.Under\_flag1

	CATEGORY	ID	SCH	XCBM_CLASS	XCBM_STU_LEVEL	XCBM_GENDER	XCBM_STU_PROGRAM1	COURSE_LOAD1	FTIC_FLAG
1	ALL OTHER DS			9 JR	UD	F	BUSADM.BBA	PT	NOT FTIC
2	ALL OTHER DS			6 JR	UD	F	BUSADM.BBA	PT	NOT FTIC
3	ALL OTHER DS			9 SR	UD	F	GENSTUDIES.BGS.2CONC	PT	NOT FTIC
4	ALL OTHER DS			6 JR	UD	F	GENSTUDIES.BGS.2CONC	PT	NOT FTIC
5	OTHER FIRST YR,DS			3 FR	UD	F	GENSTUDIES.BGS.3CONC	PT	NOT FTIC
6	ALL OTHER DS			9 PB	PB	F	ART.BFAPB.EDUC	PT	NOT FTIC
7	ALL OTHER DS			9 SO	UD	F	INTRDSPLN.BS.EC-6DHH	PT	NOT FTIC
8	ALL OTHER DS			14 JR	UD	F	INTRDSPLN.BS.EC-6SPE	FT	NOT FTIC
9	ALL OTHER DS			12 JR	UD	F	GENSTUDIES.BGS.2CONC	FT	NOT FTIC
10	ALL OTHER DS			14 JR	UD	F	THEATRE.BA.ACT-DRCT	FT	NOT FTIC

# What if I need additional variables?

```
PROC SQL;
Create table UNDER1 as
  Select * from connection to oracle
  (
|
SELECT DISTINCT SUBSTR(XCBM_ENROLL_ID,7,7) AS ID,
                XCBM_SCH_ON_CAMPUS AS ON1,
                XCBM_SCH_OFF_CAMPUS AS OFF,
                SUM(XCBM_SCH_ON_CAMPUS+XCBM_SCH_OFF_CAMPUS) AS HOURS,
                XCBM_CLASS,
                XCBM_STU_LEVEL,
                XCBM_GENDER,
                XCBM_STU_PROGRAM1,
                CASE WHEN SUM(XCBM_SCH_ON_CAMPUS+XCBM_SCH_OFF_CAMPUS)>= 12 THEN 'FT'
                     ELSE 'PT' END AS COURSE_LOAD
FROM          COLLEAGUE.XCBM_ENROLL_view
WHERE xcbm_term IN ('19/FA')
      AND (XCBM_STU_LEVEL LIKE 'U%' OR XCBM_STU_LEVEL='PB')
```

# Output

VIEWTABLE: Work.Under1

	ID	ON1	OFF	HOURS	XCBM_CLASS	XCBM_STU_LEVEL	XCBM_GENDER	XCBM_STU_PROGRAM1	COURSE_LOAD
1		18	0		18 SR	UD	M	COMPSCI.BS	FT
2		0	3		3 FR	UD	M	DUALCREDIT	PT
3		15	0		15 SR	UD	F	NUTRITION.BS.DIET	FT
4		13	0		13 SO	UD	F	KINES.BS.EXERCISEPT	FT
5		15	0		15 FR	UD	M	KINES.BS.EXERCISEPT	FT
6		12	0		12 SO	UD	F	NURSENTRY.BS	FT
7		12	0		12 SR	UD	F	NUTRITION.BS.DIET	FT
8		12	0		12 SR	UD	F	INTRDSPLN.BS.EC-6ESL	FT
9		15	0		15 SO	UD	F	KINES.BS.EXERCISE	FT
10		15	0		15 FR	UD	F	CRIMJUST.BS	FT

# Aggregating the data for survey entry

- **Proc report** is my procedure of choice, but **Proc tabulate** can also work here

```
PROC REPORT DATA=UNDER_FLAG1 ;  
COLUMNS  CATEGORY COURSE_LOAD1, (XCBM_GENDER N) ;|  
DEFINE CATEGORY/GROUP;  
DEFINE COURSE_LOAD1/ACROSS;  
DEFINE XCBM_GENDER/ACROSS;  
DEFINE N/'STUDENTS';  
TITLE 'UNDERGRAD ENROLLMENT';  
RUN;
```

UNDERGRAD ENROLLMENT

CATEGORY	COURSE_LOAD1					
	FT			PT		
	XCBM_GENDER		STUDENTS	XCBM_GENDER		STUDENTS
F	M	F		M		
ALL OTHER DS	4799	553	5352	2070	256	2326
FTIC	1178	99	1277	23	1	24
OTHER FIRST YR,DS	341	41	382	42	7	49
OTHER UNDER	13	8	21	708	452	1160

# Proc Means

- If you're looking for basic stats for a group, **Proc Means** is a great tool that can provide results in seconds.

```
PROC MEANS DATA=USE MEAN P25 MEDIAN P75 ;  
CLASS ACT_SUB;  
VAR ACT_M ACT_E ACT_COMP;  
RUN;
```

ACT_SUB	N Obs	Variable	Label	Mean	25th Pctl	Median	75th Pctl
N	789	ACT_M		.	.	.	.
		ACT_E		.	.	.	.
		ACT_COMP	ACT_COMP	.	.	.	.
Y	512	ACT_M		19.6269531	16.0000000	18.0000000	22.5000000
		ACT_E		19.6582031	15.0000000	20.0000000	23.0000000
		ACT_COMP	ACT_COMP	19.8925781	16.0000000	19.0000000	22.5000000

# Text Files for IPEDS

- IPEDS offers a time saving alternative to manually entering data. “The file upload and data import function can be used to complete various survey components.” These components include:

✓ Completions	✓ Fall & 12 Month Enrollment	✓ Finance
✓ Graduation Rates	✓ Student Financial Aid	✓ Human Resources

- Data \_Null\_ is a DATA step where no output is written. It can be used to produce a text file.

```
data _null_ ;  
    set ipeds_upload_b ;  
    FILE "C:\IPEDS\Output\12-Month_Enrollment\&AY._Iped_s_12-mth_Enroll_upload_b.txt" ;  
    PUT @1 UNITID @;  
    PUT @7 SURVSECT @;  
    PUT @10 PART @;  
    PUT @20 CREDHR SU @;  
    PUT @36 CREDHR SG @;  
    PUT @44 RDOCFTE ;  
  
run ;
```

The PUT statement writes the output and @n defines the column where the variable is placed. The trailing @ keeps the next variable on the same line. When there is no @ the output moves to next line.



# Text Files for Other Surveys, Reports, & Data Uploads

- SAS output text files can also be used for the CGS-GRE survey, CBM reports, and National Student Clearinghouse data uploads.

```
data _null_ ;
  set clearinghouse_data2;
  by D1;
  FILE "C:\National Student Clearinghouse\Output\Clearinghouse.txt" dlm="09"X;    /*tab delimited*/
  if _n_=1 then do;
    PUT H1 @; PUT school_code @; PUT branch_code @; PUT school_name @;
    PUT TODAY @; PUT search @; PUT etype;

  end;
  PUT D1 @;
  PUT blank @;
  PUT first_name2 @;
  PUT MI @;
  PUT last_name2 @;
  PUT blank2 @;
  PUT BIRTH @;
  PUT SEARCH_DAY @;
  PUT blank3 @; PUT school_code @; PUT branch_code @; PUT return_field;
  if last.D1 then do;
    row_count = _n_ + 2; /*number of rows plus header and footer*/
    PUT T1 @; PUT row_count;

  end;

run ;
```

# Steps and Procedures to keep in mind

## They will change your life!

- Proc import
- Proc export
- Data step
- Proc Report
- Proc Means

<https://documentation.sas.com/?docsetId=proc&docsetTarget=n1qn5sclnu2l9dn1w61fw8wqhts.htm&docsetVersion=9.4&locale=en>

<https://documentation.sas.com/?docsetId=proc&docsetTarget=n045uxf7l12p5on1ly4at3vpd47e.htm&docsetVersion=9.4&locale=en>

<https://documentation.sas.com/?docsetId=lrcon&docsetTarget=p1topuaeb1ikf0n11f6ibw5ftral.htm&docsetVersion=9.4&locale=en>

<https://documentation.sas.com/?docsetId=proc&docsetTarget=p0bqogcics9o4xn17yvt2qjbgdpi.htm&docsetVersion=9.4&locale=en>

<https://documentation.sas.com/?docsetId=proc&docsetTarget=p0f0fjpieuco4gn1ri963f683mi4.htm&docsetVersion=9.4&locale=en>

# Resource Links

- <https://communities.sas.com/>
- <https://support.sas.com/en/documentation.html>

# Tips

- Train yourself to be a project manager.
- Create an AY calendar that shows when tasks are due. Seeing it is key!
- At the beginning of a project, create a “master” data set to pull most information from. There is no need to re-pull data each run. This takes time and memory that isn’t necessary. Save data to a permanent library if it is going to take multiple sessions to complete.
- Utilize resources on SAS Communities. It is the *Google* of all things SAS!
- If time permits, learn to write a macro. It makes life easier in the long run.

# Survey Calendar

SURVEY	AUDIENCE (IF ADMINISTERED TO ANYONE)	2017			2018			2019			2020			2021			2022		
		Spring	Summer	Fall															
MSL	RANDOM 4K UD; RANDOM 2K GRADS; ALL LDRSHP STUDENTS	FEB																	
NSSE	ALL FIRST YEAR AND SENIOR STUDENTS	FEB									FEB								
FSSE	ALL FACULTY	FEB									FEB								
BCSEE	ALL FIRST YEAR																		
SSI	ALL STUDENTS																		
GSS	ALL STUDENTS WHO HAVE APPLIED FOR GRADUATION	APR/MAY		NOV	APR/MAY		NOV						NOV			NOV			AUG
FACULTY ACA	FACULTY MEMBERS WITH ACAS			NOV			NOV						NOV			NOV			NOV
COMMON DATASET				NOV			NOV						NOV			NOV			NOV
FACT SHEET				NOV			NOV						NOV			NOV			NOV
ACCOUNTABILITY REPORT		JAN			JAN			JAN			JAN			JAN			JAN		
MLA ENROLLMENT SURVEY		JAN			JAN			JAN			JAN			JAN			JAN		
CGS/GRE SURVEY		FEB			FEB			FEB			FEB			FEB			FEB		
PETERSON'S UD		FEB			FEB			FEB			FEB			FEB			FEB		
NSF-GSS PART 1				DEC															
NSF-GSS PART 2		FEB			FEB			FEB			FEB			FEB			FEB		
IIE OPEN DOORS		MAR			MAR			MAR			MAR			MAR			MAR		
CSRDE-FTIC		MAR			MAR			MAR			MAR			MAR			MAR		
PETERSONS FINAID		MAR			MAR			MAR			MAR			MAR			MAR		
VSA		MAR			MAR			MAR			MAR			MAR			MAR		
WINTERGREEN ORCHARD HOUSE		MAR			APR														
PETERSONS GRADUATE		APR			APR			APR			APR			APR			APR		
COLLEGE BOARD FINAID		APR			APR			APR			APR			APR			APR		
NCAA		APR/MAY			APR/MAY			APR/MAY			APR/MAY			APR/MAY			APR/MAY		
US NEW FINAID		APR			APR			APR			APR			APR			APR		
CRDSE-STEM		MAY			MAY			MAY			MAY			MAY			MAY		
US NEWS																			
ACT-IDQ MINIMAL FIN AID (USE IPEDS)			JUN			JUN			JUN			JUN			JUN			JUN	
NCAA			JUN			JUN			JUN			JUN			JUN			JUN	
WINTERGREEN ORCHARD HOUSE UPDATED EXPS			JUN			JUN			JUL			JUL			JUL			JUL	
COLLEGE BOARD COST OF ATTENDANCE			JUL			JUL			JUL			JUL			JUL			JUL	
UNIV OF WYOMING TUITION/FEES SURVEY			JUL			JUL			JUL			JUL			JUL			JUL	
PETERSONS INTERIM TUITION/FEES SURVEY				SEP															
TEXAS MONTHLY COLLEGE GUIDE				SEP															
MOODY'S TUITION SURVEY				SEP			SEP			OCT			OCT			OCT			OCT
DALLAS BUSINESS JOURNAL SURVEY				OCT															
HOUSTON BUSINESS JOURNAL SURVEY				OCT															
COURSE EVALS		APR	JUN/JUL	NOV															
DENTON STAND REPORT				OCT		MAY	OCT												

# Questions?

## Contact Info:

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