

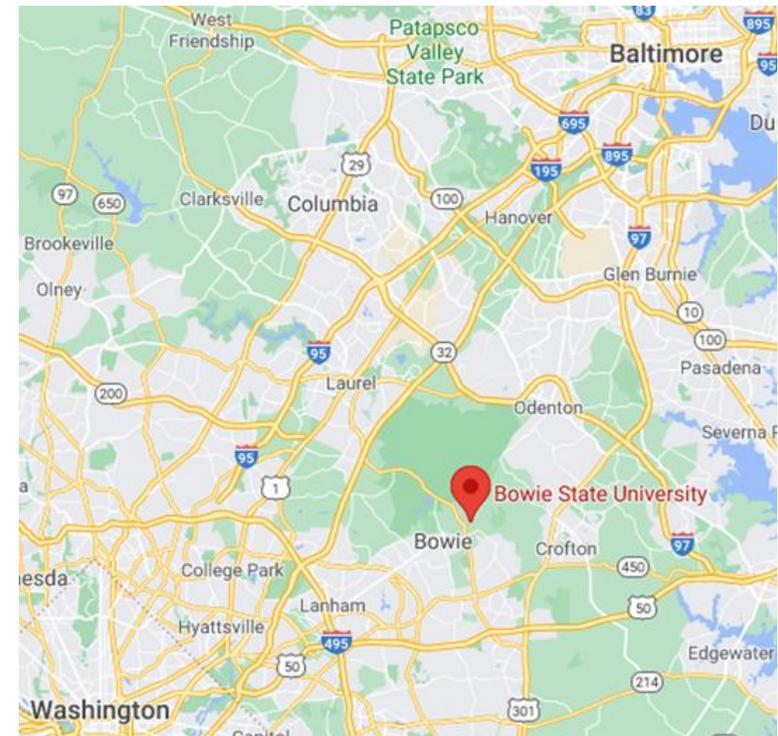
Tracking Bachelor's Degree Recipient Reenrollment and Subsequent Degrees

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Effectiveness**

Tim Vlamis, Vlamis Software Solutions

Bowie State University

- 150+ years old
- Oldest Historically Black College and University in Maryland
- Located between Washington DC and Baltimore MD
- Part of the University System of Maryland
- 23 undergraduate, 19 master's, 2 doctoral programs
- Enrollment – over 6,300
 - ~5,400 UNG
 - ~900 GRAD
- Over 1,000 degrees awarded annually



Office of Planning, Analysis and Accountability (OPAA) - What we do



IR Responsibilities:

- Data Reporting (federal, state, system)
- Enrollment analysis
 - Student retention, progression, graduation, student profiles, fact book
- Grade analysis
 - Midterm analysis, success rates, etc
- Surveys
 - **Internal** - entering student, current student, graduating student satisfaction, course evaluations, ad hoc
 - **External** –US News, CUPA, AAUP, VSE, etc
- Enrollment Projections

IE Responsibilities:

- Narrative Reporting (state, system)
- NCAA / USDOE reporting
- Curriculum management
- Accreditation – regional / specialized
- Strategic planning
- Planning & budgeting
- SLO and other assessment activities
- President and Provost projects
- ***Data warehouse and Post Graduation outcomes***

Data Warehouse and Post Graduate Outcomes

- BSU Strategic Plan – Objective 3.4
 - Construct an analytics capacity
- Title III HBGI Activity
 - Enhancing Institutional Effectiveness, Academic, and Student Success Through Data Analytics
 - ✓ Phase I – Identifying data warehouse and analytics tools
 - Oracle Autonomous Data Warehouse (ADW) & Oracle Analytics Cloud (OAC)
 - Phase II – Build initial data structures to support academic decision making and student success
 - SOW 1 – Create initial data integrations from Peoplesoft to ADW
 - ✓ SOW 2 – Create data structures for tracking reenrollment of bachelor's degree recipients

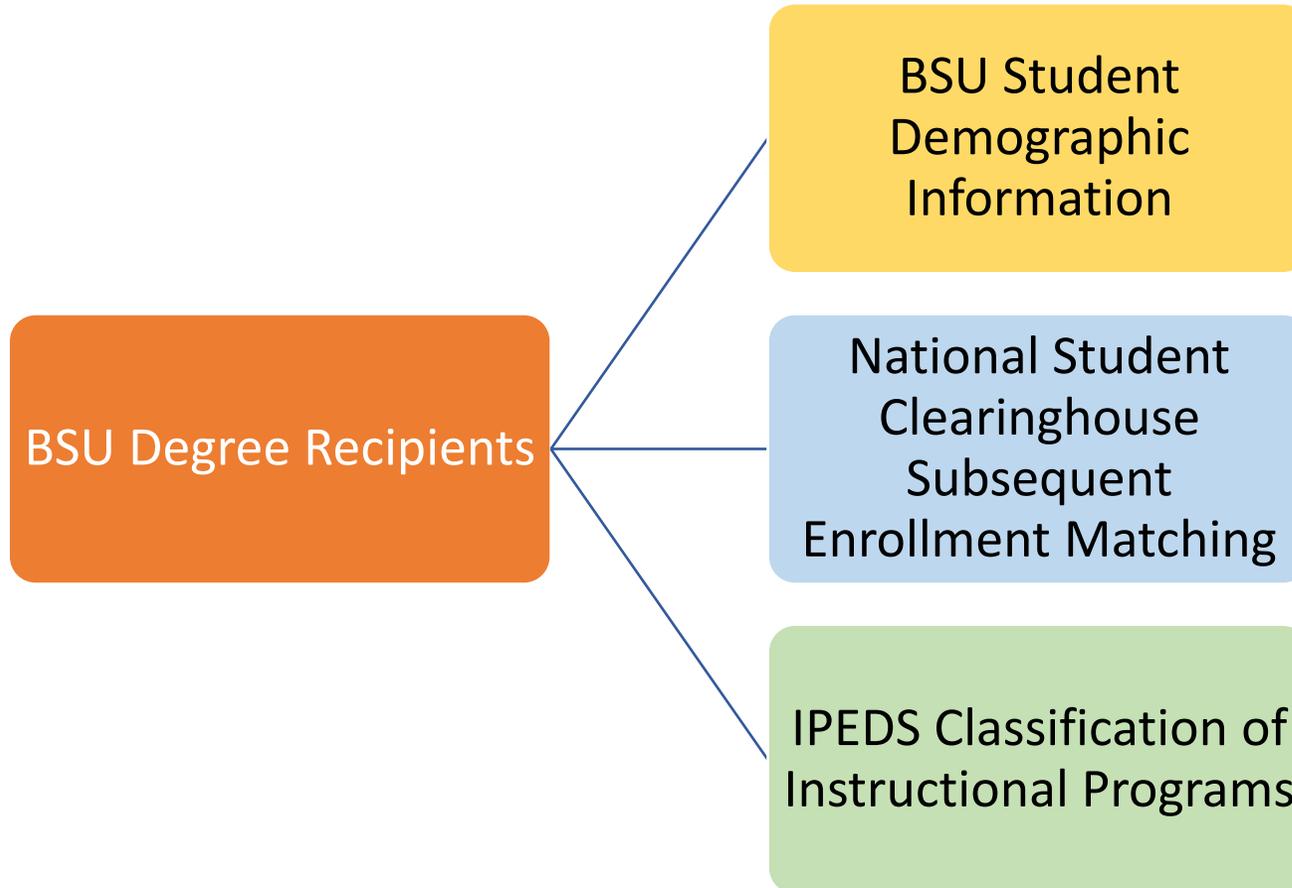
Tracking Reenrollment of Bachelor's Degree Recipients

- Why

- Demonstrate effectiveness of BSU's academic programs
 - Post Graduation Reenrollment
 - Post Graduation Earnings (future)
- Meet programmatic specialized accreditation requirements
- Create a sustained and accessible data integration and visualization process

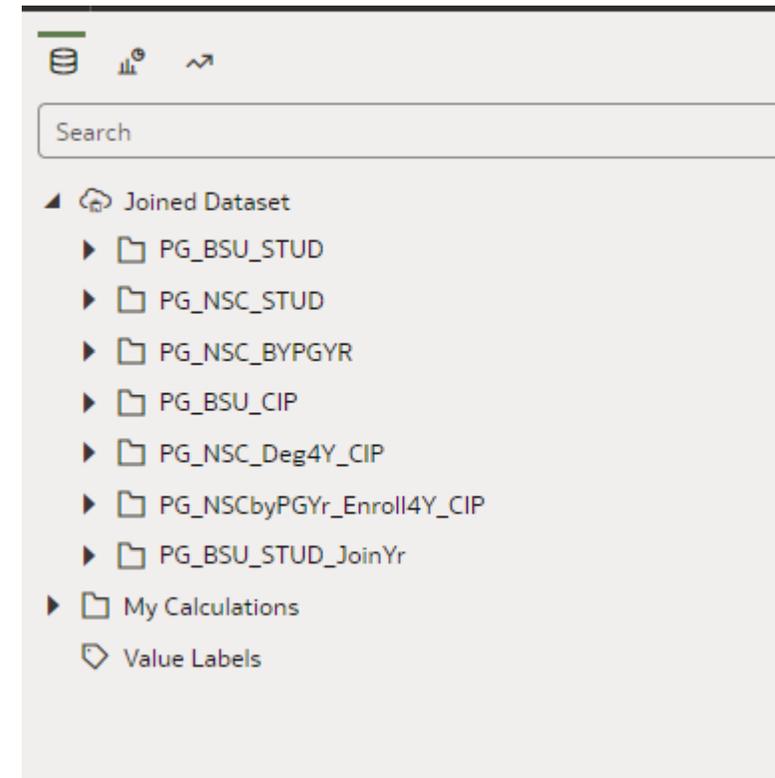


Tracking Reenrollment of Bachelor's Degree Recipients – Data Sources



Data Strategy for Post Grad

- Trade off - **development speed** vs quality
 - Used multi-table data sets rather than RPD
 - RPD development and ADW base model not complete
- Had to consider modeling in ADW vs OAC
- Custom calculations to be done in front end
- Move modeling “down the stack” in the future



Data Sources – Ad Hoc and Warehouse

- Created summary file for BSU students
- Loaded data into ADW using Database Tools utility
 - Decided to use power of ADW vs OAC data sets
 - 3 major sources – BSU, Clearing House, CIP
- Used staging tables to facilitate unpivot transforms for clearing house data
 - Post grad years 1 – 8 table PG_NSC_byPGYr
 - Creates 8 records per student, one for each year
- Had to clean up and create short titles for CIP data

Data Sources – Student Data

- Major Student Table from BSU has one record per student
- Compiled data from PeopleSoft tables

Field Name	Field Type
PG_BSU_STUD	
COLLECTION_TERM	A
COLLECTION_YEAR	A
OPEID	A
LOCAL_CAMPUS_STUDENT_IDENTIFIER	A
# BSU Students	#
DEGREE_DATE	D
FIELD6	#
DEGREE_SOUGHT	A
PROGRAM_TAXONOMY	A
CUMULATIVE_GPA	#
CUMULATIVE_NATIVE_CREDITS_EARNED	#
CUMULATIVE_DEGREE_CREDITS_HOURS_AWARDED	#
ENTRY_TERM	A
ENTRY_YEAR	A
CREDIT_HOURS_REQUIRED_TO_EARN_AWARD	#
GENDER	A
US_CITIZENSHIP	A
HISPANIC_LATINO_ETHNICITY	A
WHITE	A
BLACK_AFRICAN_AMERICAN	A
ASIAN	A
AMERICAN_INDIAN_NATIVE_ALASKAN	A
NATIVE_HAWAIIAN_PAC_IS	A
DIS_FY_2014_2021L_BIRTHDATE	D
ETH_97	A
EST_AGE_YR	#
AID_YR	A
DESCR	A
HEGIS	A
PROGRAM_NAME	A
CIP	A



Data Sources – CIP Codes

- CIP Codes maintained by IES National Center for Educational Statistics
- Updated in 2010, 2020 “Crosswalk”
- Website listing
<https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55>
- “There’s a code for that.”

- Major Student Table from BSU has one record per student
- Clearing House Data is unique by student by institution by year
- CIP Data is provided by US Dept of Education → IES Institution of Education Science → NCES National Center for Education Statistics

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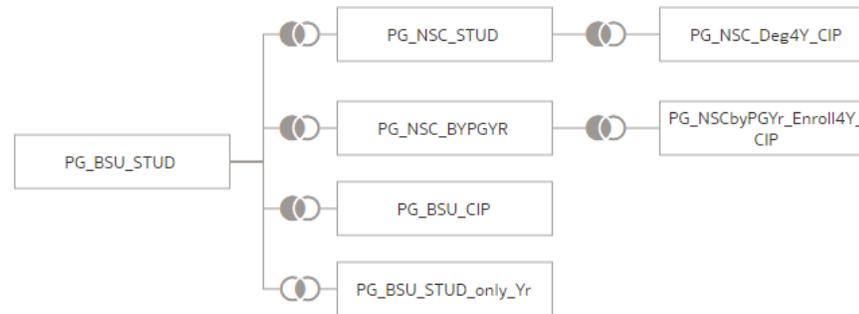
PG_BSU_STUD
A COLLECTION_TERM
A COLLECTION_YEAR
A OPEID
A LOCAL_CAMPUS_STUDENT_IDENTIFIER
# # BSU Students
▶ ⌚ DEGREE_DATE
# FIELD6
A DEGREE_SOUGHT
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A ETH_97
# EST_AGE_YR
A AID_YR
A DESCR
A HEGIS
A PROGRAM_NAME
A CIP

```



Search 

ADW Connection



COLLECTION_T...	COLLECTION_YE...	OPEID	LOCAL_CAMPU...	# BSU Students	DEGREE_DATE	FIELD6	DEGREE_SOUGHT	PROGRAM_TAX...	CUMULATIVE_GPA	CUMULATIVE_N...	CUMULATIVE_D...	ENTRY_TERM	ENTRY_YEAR
9		206200	This column contains 99.40% unique values.	This column contains 99.40% unique values.		1	40 60 50 81 70	50601 120300 60500 210500 200101 40100 220802 210400 70200 200403				1 3 4	2013 2014 2016 2012 2015 2017 2011 2018 2010 2009
A COLLECTIO...	A COLLECTION...	A OPEID	A LOCAL_CAM...	# # BSU Stude...	DEGREE_DATE	# FIELD6	A DEGREE_SO...	A PROGRAM_T...	# CUMULATIVE...	# CUMULATIVE...	# CUMULATIVE...	A ENTRY_TERM	A ENTRY_YEAR
9	2016	206200	2080186	2080186	05/23/2016	1	60	200401	3.65	67	67.00	1	2008

Data Munging/blending/mashup/wrangling

- 3rd party syndicated data
 - One file per year
 - Recast and pivot the data
 - Some questions on format
 - EXTREMELY long titles, more than 128 characters
 - Merged records into single file
- Joins
 - Used left outer joins to maintain completeness
- Bowie state definitions vs syndicated
- Basic star – facts and dimensions

```

1 CREATE TABLE "STUDENTANALYTICS"."CLEARINGHOUSEYR1"
2   (
3     "ENTERING_COHORT_YEAR" NUMBER,
4     "REQUESTOR_RETURN_FIELD" VARCHAR2(4000) COLLATE "USING_NLS_COMP",
5     "POST_GRAD_YEAR" NUMBER,
6     "DATE_RANGE" VARCHAR2(4000) COLLATE "USING_NLS_COMP",
7     "School Code/Branch of First Different Two-Year Institution Attended" VARCHAR2(4000) COLLATE "USING_NLS_COMP",
8     "Name of First Different Two-Year Institution Attended" VARCHAR2(4000) COLLATE "USING_NLS_COMP",
9     "Date of First Enrollment at First Different Two-Year Institution" NUMBER,
10    "CIP Code Associated to Enrollment at Different Two-Year Institution" NUMBER
11  ) DEFAULT COLLATION "USING_NLS_COMP" SEGMENT CREATION IMMEDIATE
12  PCTFREE 10 PCTUSED 40 INITRANS 10 MAXTRANS 255
13  COLUMN STORE COMPRESS FOR QUERY HIGH ROW LEVEL LOCKING LOGGING
14  STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 MAXEXTENTS 2147483645
15  PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
16  BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)
17  TABLESPACE "DATA"
18  as select
19    "ENTERING_COHORT_YEAR",
20    "REQUESTOR_RETURN_FIELD",
21  FROM STUDENTANALYTICS.CLEARINGHOUSE3
22  UNPIVOT (
23    ("DATE_RANGE",
24    "School Code/Branch of First Different Two-Year Institution Attended",
25    "Name of First Different Two-Year Institution Attended",
26    "Date of First Enrollment at First Different Two-Year Institution",
27    "CIP Code Associated to Enrollment at Different Two-Year Institution" )
28  FOR "POST_GRAD_YEAR"
29  IN (
30    ("DATE_RANGE_OF_YEAR_1",
31    "Year 1: School Code/Branch of First Different Two-Year Institution Attended" ,
32    "Year 1: Name of First Different Two-Year Institution Attended",
33    "Year 1: Date of First Enrollment at First Different Two-Year Institution",
34    "Year 1: CIP Code Associated to Enrollment at Different Two-Year Institution"
35  )
36  AS 1,
37    ("DATE_RANGE_OF_YEAR_2",
38    "Year 2: School Code/Branch of First Different Two-Year Institution Attended" ,
39    "Year 2: Name of First Different Two-Year Institution Attended",
40    "Year 2: Date of First Enrollment at First Different Two-Year Institution",
41    "Year 2: CIP Code Associated to Enrollment at Different Two-Year Institution"

```

Visualizing Data Results

- DEMO

Future Work

- Building a foundation for enrollment analysis
- Many, many other subject areas
 - Degree analysis
 - Class performance
 - Academic progress
 - Student success

Q&A





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