

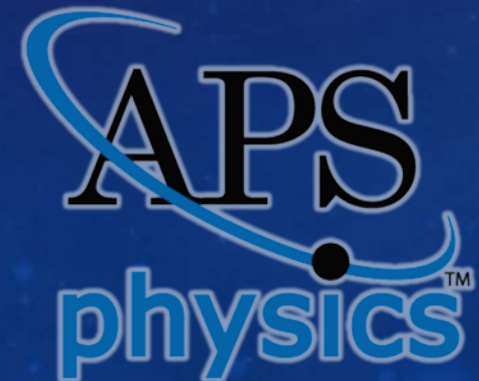
From Data and Categories to a More Diverse Physics Education

ZEYNEP TUNA

BOWDOIN COLLEGE

*AMERICAN PHYSICAL
SOCIETY*

*EDUCATION & DIVERSITY
INTERN*



ABOUT ME

- International student from Istanbul, Turkey
- Studied at UWC Mostar in Bosnia and Herzegovina
- Physics and Computer Science
- Passionate about increasing the presence of women's and diversity groups
 - Bowdoin Women in Physics
 - Girls Who Code
 - International Student Association



DATA

1. Making a decision between the IPEDS and the NSF database
2. Updating the Überspreadsheet with the 2019 data
3. Updating the How Does Your Institution Compare webpage with the 2018-19 data
4. Updating the Top Educators Lists with the 2019 data

UnitID	
222178	Ab
126182	Ad
188429	Ad
168528	Ad
138600	Ag
200697	Alr
100654	Alr
168546	All
210571	All
188641	All
210669	All
168591	Alr
131159	An
164465	An
150066	An
168740	An
222831	An
197869	Ap
168786	Aq
211088	An
420574	Ari
104151	Ari
106458	Ari
106467	Ari
138789	An
201104	Asi
164562	Asi
100812	Atl
100858	Au

The image shows two overlapping screenshots of educational data websites. The top screenshot is the IPEDS (Integrated Postsecondary Education Data System) 'Compare Institutions' page. It features a navigation bar with 'Home', 'How Does Your Institution Compare', and 'Data Tools | Help Desk 1 866-558-0658'. The main content area is titled 'Compare Institutions' and includes a 'Final Release Data (Change)' link. A progress bar shows three steps: '1. Select Institutions', '2. Select Variables', and '3. Output'. Below this, there is a section for 'My Comparison Institution - None Selected' with an 'ADD' button. A question asks 'How would you like to select institutions to include in your data file/report?' with options: 'By Names or UnitIDs', 'By Groups', 'By Variables', and 'By Uploading a File'. A text input field for 'Institution Name' contains 'Bowdoin' and a 'select' button is next to it. The bottom screenshot is the NSF (National Science Foundation) database interface. It has a header with 'HOME', 'EXPLORE DATA', 'BUILD TABLE', 'BUILD CHART', and 'PUBLIC USE FILES'. The main content area is titled 'Average Physics degrees granted (2017-2019) - Bowdoin College'. It includes a search bar, a 'Please click' prompt, and a list of 'Measures' and 'Dimensions'. A red banner at the bottom states: 'Your customized table will display after you select at least one measure and dimension from the left-side panel (left rail)'. The left rail contains a list of measures and dimensions, with 'Institution Characteristics' and 'Degrees Awarded by Colleges and Universities' selected.

CATEGORIES

Race and Ethnicity:

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Hispanic or Latino
- Two or More Races
- Race/Ethnicity Unknown
- Nonresident Alien

Gender:

- Female
- Male

IES NCES National Center for Education Statistics

Search for variable(s)

Search variables from the tree, click Continue

Continue

Grand total

Grand total men

Grand total women

American Indian or Alaska Native total - new

American Indian or Alaska Native men - new

American Indian or Alaska Native women - new

Asian total - new

Asian men - new

Asian women - new

Black or African American total - new

Black or African American men - new

Black or African American women - new

Hispanic or Latino total - new

Hispanic or Latino men - new

Hispanic or Latino women - new

Native Hawaiian or Other Pacific Islander total - new

Native Hawaiian or Other Pacific Islander men - new

Native Hawaiian or Other Pacific Islander women - new

White total - new

White men - new

White women - new

Two or more races total - new

Two or more races men - new

Two or more races women - new

Race/ethnicity unknown total

Race/ethnicity unknown men

Race/ethnicity unknown women

Nonresident alien total

Nonresident alien men

Nonresident alien women

VARIABLES OR DIMENSIONS

FOR THIS, WE HAD TO MAKE A FEW CHANGES:

- Switched to the NSF database from IPEDS
- Wrote out full and correct demographics titles in the Überspreadsheet
- The inclusion of 'Two or More Races' category to underrepresented minorities (URM)
- 3-year reporting period for the Top Educators Lists instead of a longer one
- Addition of URM Women to the Top Educators Lists

2021_Uberspreadsheet_Code.py ×

Users > tuna > Desktop > IPEDS_Data > 2021_Uberspreadsheet_Code.py

```
1065 y31, y32, y33, y34, y35, y36 = '2025', '2026', '2027', '2028', '2029', '2030'
```

UnitID	Institution Name	State	Degree	Total - Bachelor - Physics - 3-YR-AVG	Total - Master - Physics - 3-YR-AVG
126182	Adams State University	CO	None	0	0
166939	Mount Holyoke College	MA	Bach	11	0
115409	Harvey Mudd College	CA	Bach	21	0
190099	Colgate University	NY	Bach	24	0
166027	Harvard University	MA	PhD	58	35.66666667
110635	University of California-Berkeley	CA	PhD	162.6666667	39.66666667
167835	Smith College	MA	Bach	9	0
195474	Siena College	NY	Bach	18.66666667	0
153384	Grinnell College	IA	Bach	18.66666667	0
189097	Barnard College	NY	Bach	7.333333333	0
197133	Vassar College	NY	Bach	17	0
217819	College of Charleston	SC	Bach	22	0
146719	Loyola University Chicago	IL	Bach	19	0
174844	St Olaf College	MN	Bach	20.66666667	0
173160	Bethel University	MN	Bach	28.66666667	0
110529	California State Polytechnic University-Pomona	CA	Bach	34.33333333	0
110583	California State University-Long Beach	CA	Mast	42	16
168786	Aquinas College	MI	None	0	0
211088	Arcadia University	PA	None	0	0
110422	California Polytechnic State University-San Luis Obispo	CA	Bach	33.66666667	0
170976	University of Michigan-Ann Arbor	MI	PhD	78.33333333	21
240329	University of Wisconsin-La Crosse	WI	Bach	37.33333333	0
173258	Carleton College	MN	Bach	20.66666667	0
237011	Western Washington University	WA	Bach	22	0
237969	West Virginia Wesleyan College	WV	Bach	16.66666667	0
212577	Franklin and Marshall College	PA	Bach	15	0
100812	Athens State University	AL	None	0	0
243744	Stanford University	CA	PhD	27.33333333	19

```
1088 n16 = 'Native Hawaiian - Physics'
```

```
1089 n17 = 'Native Hawaiian - Men - Physics'
```

```
1090 n18 = 'Native Hawaiian - Women - Physics'
```

```
1091 n19 = 'White - Physics'
```

```
1092 n20 = 'White - Men - Physics'
```

```
1093 n21 = 'White - Women - Physics'
```

```
1094 n22 = 'Two or More Races - Physics'
```

LOTS OF DOCUMENTATION!

RESULTS

- The inclusion of ‘Two or more races’ in the URM numbers did not make a considerable difference
- Some Top Educators Lists are either non-existent or very short
 - Women’s, URM, and URM Women’s tables
- The NSF data does not include second degrees which made a big difference for some institutions



Highest Number of Physics Degrees Granted to Underrepresented Minorities (URM) Women

URM Women Undergraduate Physics Degrees: Bachelor’s Degree Institutions 2017-2019

Institution	Degrees Awarded (3 year average)



Highest Number of Physics Degrees Granted to Underrepresented Minorities (URM)

URM PhD Physics Degrees: PhD Degree Institutions 2017-2019

Institution	Degrees Awarded (3 year average)
University of Michigan – Ann Arbor	5
CUNY Graduate School and University Center	4
University of Arizona	3

Highest Fraction of Physics Degrees Granted to Women

Fraction of Female Master’s Physics Degrees: Master’s Degree Institutions 2017-2019

Schools tabulated below all had 30% or more of their Master’s degrees being awarded to women

Institution	Degrees Awarded to Women (3 year average)	Fraction of Degrees Awarded to Women
California State University – Los Angeles	5	43%
Clark Atlanta University	4	44%
Fisk University	3	67%

The background is a dark blue gradient with a starry space pattern. It features several technical diagrams: a circular gauge with a needle and scale on the right, a circular arrow diagram at the bottom right, and a circular arrow diagram at the bottom left. The text is centered in a bold, white, sans-serif font.

THANK YOU!
QUESTIONS OR COMMENTS?

⁷ Thank you to Michael Wittmann, Kayla Stephens, Mikayla Cleaver, and Brad Conrad for this opportunity!