

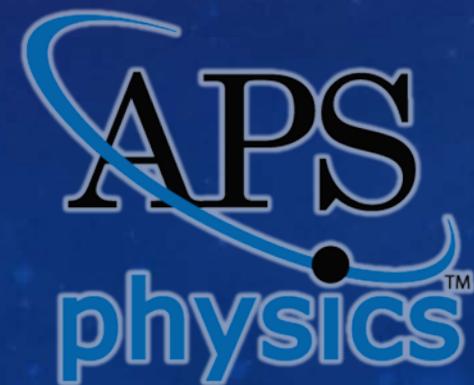
From Data and Categories to a More Diverse Physics Education

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

The screenshot shows the IPEDS (Integrated Postsecondary Education Data System) website. At the top, the logo for IES (National Center for Education Statistics) is visible. The main heading is "IPEDS Integrated Postsecondary Education Data System". Below this, there are tabs for "1. Select Institutions", "2. Select Variables", and "3. Output". A sub-section titled "My Comparison Institution" shows "None Selected". Below this, there are four options: "By Names or UnitIDs", "By Groups", "By Variables", and "By Uploading a File". A text input field for "Institution Name" is present with a "Select" button. Below this, the text reads: "Enter either an institution name or UnitID (or a comma separated list of UnitIDs) in the text box below. As you begin typing, a list of matching institutions will appear. You can select a single institution by clicking on it from the list, or, if you want all institutions on the list, click "Select". A "Select" button is also present. The main content area displays "Average Physics degrees granted (2017-2019) - Bowdoin College". On the left, there is a sidebar with "Please click" and a "Search" bar. The search bar has a "Clear All" button and a "Search" button. Below the search bar, there are two sections: "Bachelor's" and "What percent". The "Bachelor's" section includes "Institution Characteristics (Institutions)" and "Degrees Awarded by Colleges and Universities (Degrees)". The "What percent" section includes "Dimensions", "Survey Cycle and Other Technical", "Fields of Study", "Location", "Institution Name", "Institution Characteristics", "Degrees Awarded by Colleges and Universities", "Race and Ethnicity", "Citizenship", and "Sex". A red banner at the bottom right of the main content area says: "Your customized table will display after you select at least one measure and dimension from the left-side panel (left rail).".

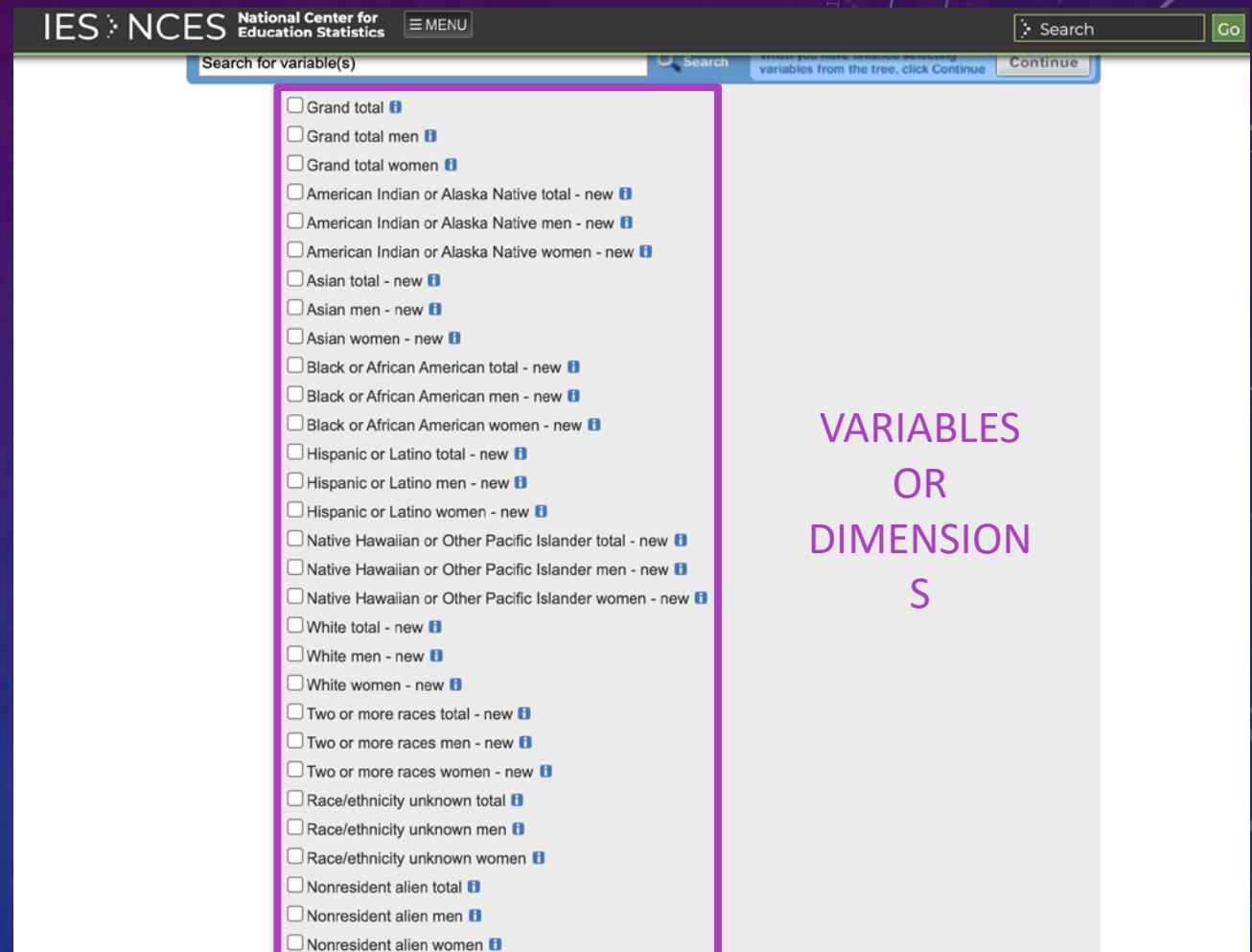
CATEGORIES

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 MENU

Search for variable(s) Search Continue variables from the tree, click Continue Go

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
DIMENSION
S

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

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

1066

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	162.66666667	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 = '2 or More - 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

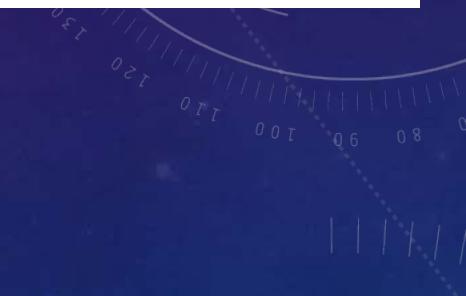
URM Women Undergraduate Physics Degrees: Bachelor's Degree Institutions 2017-2019

Institution	Degrees Awarded (3 year average)
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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

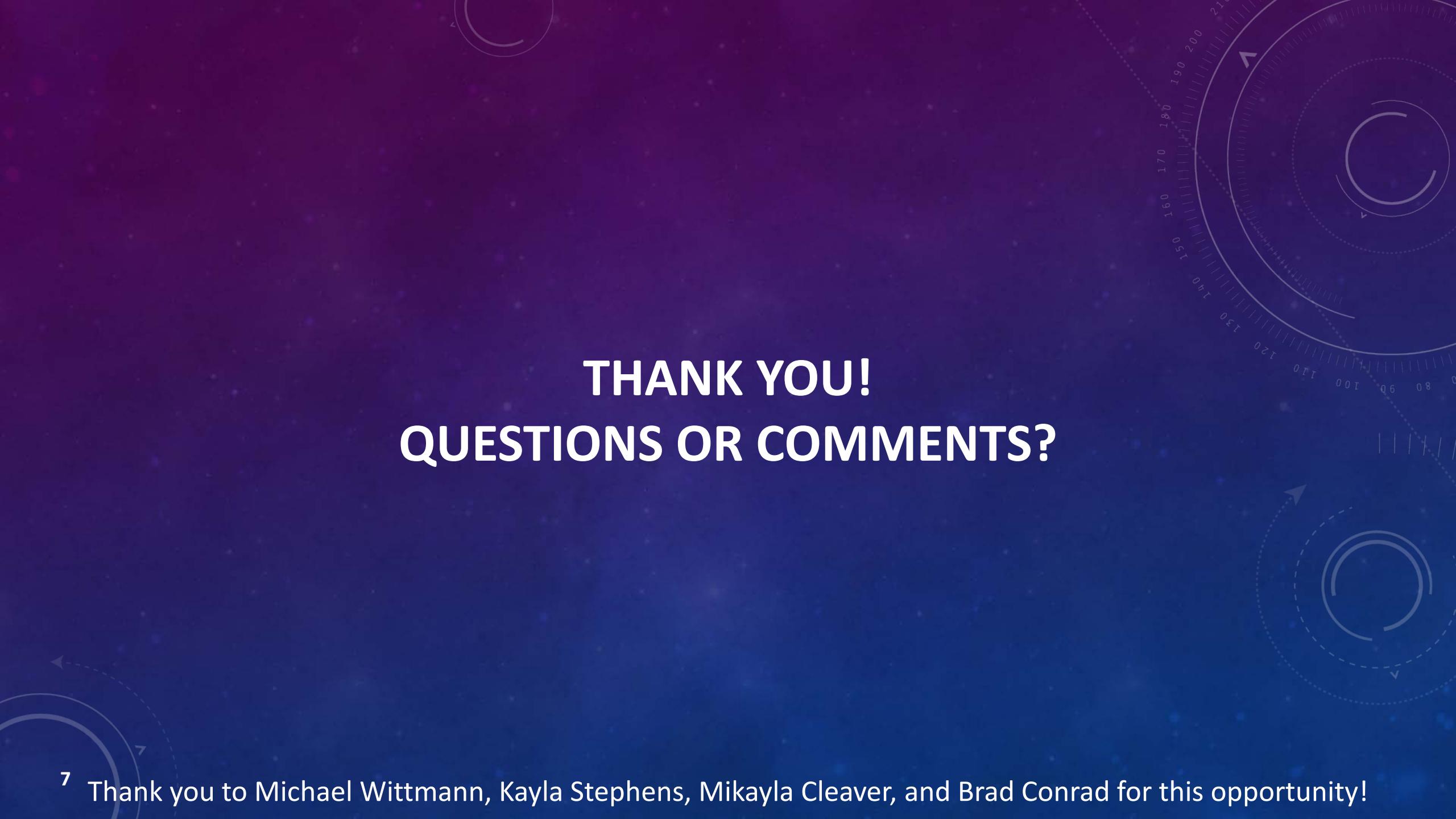


Highest Fraction of Physics Degrees Granted to Women

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%



THANK YOU! QUESTIONS OR COMMENTS?

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