



**TOTAL NUMBER OF PHD COMPLETIONS**

**% WOMEN**

**&**

**% DOMESTIC UNDER-REPRESENTED MINORITIES**

**2013 – 15, 2015-17 and 2017 – 20**

**FOR UD AND TEN COMPARATOR INSTITUTIONS**

**COLLEGE OF ARTS & SCIENCES, NATURAL SCIENCES.**

### PhD Completions and Proportion of Women and Domestic Under-represented Minorities over the periods 2013 – 2020.

With IPEDS data obtained from UD Office of Institutional Research and Effectiveness (IRE) for PhD completions and corresponding proportion of males, females and domestic under-represented minorities (Dom URM)<sup>†</sup> over the periods

- i) academic years ending June 2013, 2014 and 2015
- ii) academic years ending June 2015, 2016 and 2017 and
- iii) academic years ending June 2017, 2018, 2019 and 2020

we looked at UD's performance alongside that of ten (10) comparator institutions.

The institutions used for comparison are selected institutions which UD might see as competitors or aspirants, and are shown in Table 1, with their corresponding U.S. News Best National Universities ranking.

Institution	2022 U.S. News Best National Universities Ranking
Brown University	14
Clemson University	75
Pennsylvania State University	63
Purdue University – Main Campus	49
Rutgers University - New Brunswick	63
University of Maryland - College Park	59
University of Massachusetts – Amherst	68
University of Michigan - Ann Arbor	23
University of North Carolina – Chapel Hill	28
Virginia Polytechnic Institute (VPI) and State University (Virginia Tech)	75
University of Delaware	93

**Table 1.** UD and Comparator Institutions and their Ranking - <https://www.usnews.com/best-colleges/rankings/national-universities>

<sup>†</sup> Under-represented Minorities (URM) = Black, Hispanic, Native American Indian, Hawaiian or Other Pacific Islander

Assessment was done for College of Arts & Sciences (CAS Nat. Sci.), College of Engineering (COE) and College of Earth, Ocean & Environment (CEOE).

Along with showing comparator institutions which are producing high numbers of PhD graduates in particular research areas, the report highlights where women and domestic URMs are being trained, and could be useful in various ways:

- As a recruitment tool, as we seek to diversify our faculty
- For individual departments to get a sense of where they stand with respect to the number and diversity of their PhD recipients, and how that compares with select other programs.

The information may also be useful to departments doing their Academic Program Reviews.

### **COLLEGE OF ARTS & SCIENCES, NATURAL SCIENCES (CAS, Nat. Sci.)**

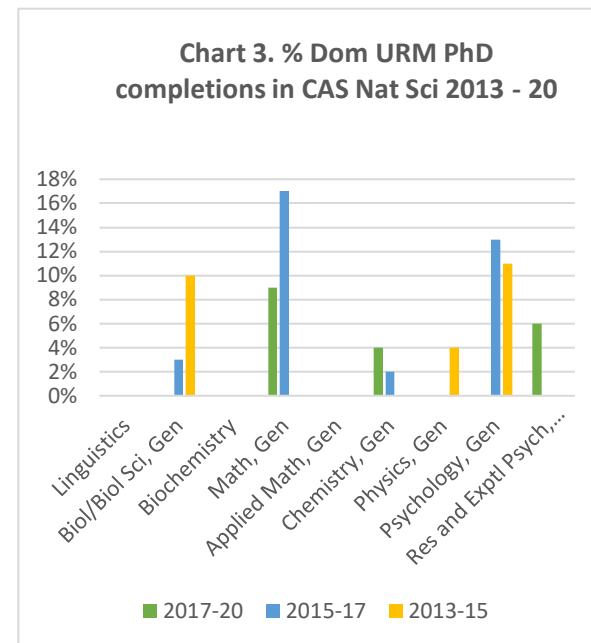
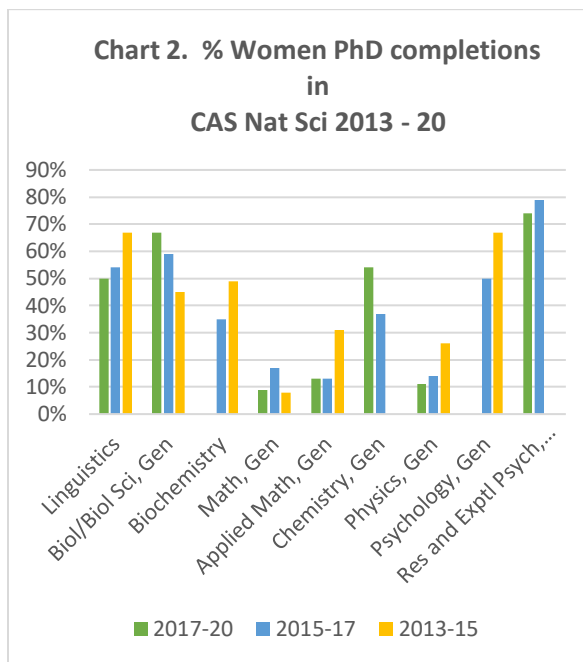
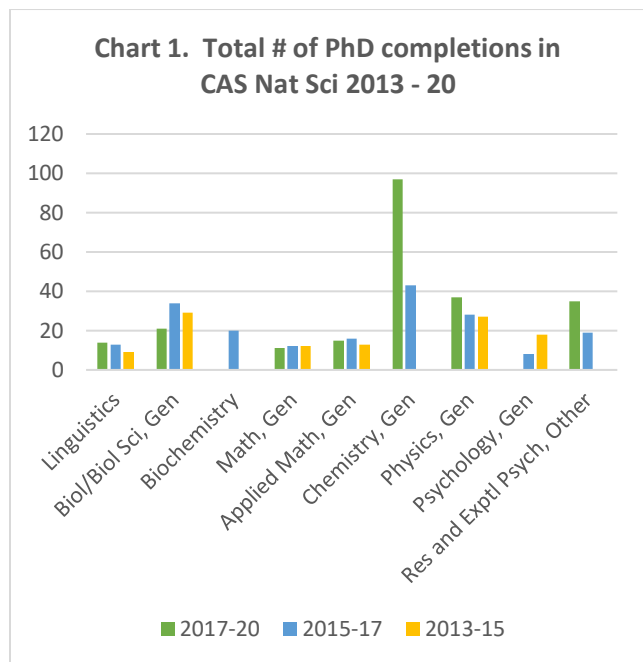
Over the periods 2013 – 2015, 2015 – 2017 and 2017 - 2020 total number of PhD completions in UD CAS Nat. Sci. were as shown in Table 2. Total number of graduates in Natural Sciences has risen steadily over the three periods from 167 in 2013-15 to 230 in 2017 - 20. [Note that the first two periods under consideration span three academic years each whereas the most recent period spans four years, the last of which was affected by COVID-19.] Overall, % women graduates for 2017-20 was 46%, for 2015-17, 40% and for 2013-15, 43%. Over these three corresponding periods, % domestic URMs was 3%, 2.6% and 3.6% respectively.

<b>CIP Code</b>	<b>Research Area</b>	<b>Total # 2017 - 20</b>	<b>Total # 2015-17</b>	<b>Total # 2013-15</b>
42.0101	Psychology		8	18
42.2799*	Research & Exptal Psych.	35	19	---
40.0801	Physics	37	28	27
40.0501*	Chemistry	97	43	---
27.0101	Mathematics	11	12	12
27.0301	Applied Mathematics	15	16	13
26.0202*	Biochemistry		20	59
26.0101	Biology	21	34	29
16.0102	Linguistics	14	13	9
	<b>TOTAL</b>	<b>230</b>	<b>193</b>	<b>167</b>

**Table 2.** Total Number of PhD completions in UD CAS Nat. Sci., UD, 2017-20, 2015-17 and 2013 – 15, by Research Area.

*\*Prior to 2016, doctoral graduates in Chemistry and Biochemistry at UD were reported to IPEDS under CIP Code 26.0202 and PhD Psychology used the code 42.0101. Starting in 2016, doctoral graduates in Chemistry and Biochemistry at UD have been reported under CIP code 40.0501, and graduates in Psychology under the code 42.2799 – Research & Experimental Psychology.*

Charts 1 – 3 show total number of graduates, % women and % domestic URMs in each research area over the three periods 2013-15, 2015-17 and 2017-20. As can be readily seen, in CAS Natural Sciences, the areas of Math and Physics have lowest % women. There are also many areas and periods where there have been no Domestic URM PhD graduates.



A closer look at the different research areas of UD CAS Nat. Sci. and how each is performing alongside our comparator institutions with regards to women and domestic URM graduates is given below (See Charts 4 through 30). Not every comparator institution had PhD completions in the same research area (with the same CIP Code) as UD. The comparison was done for UD and the institutions listed, using the CIP code of the degree. ***UD data is shown at the first point on each chart.***

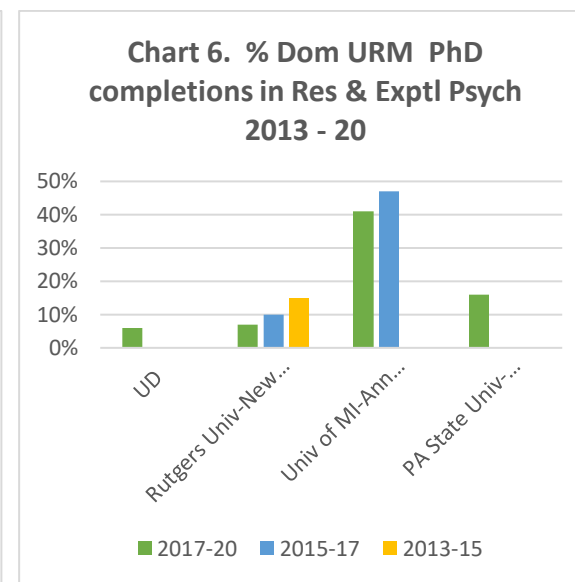
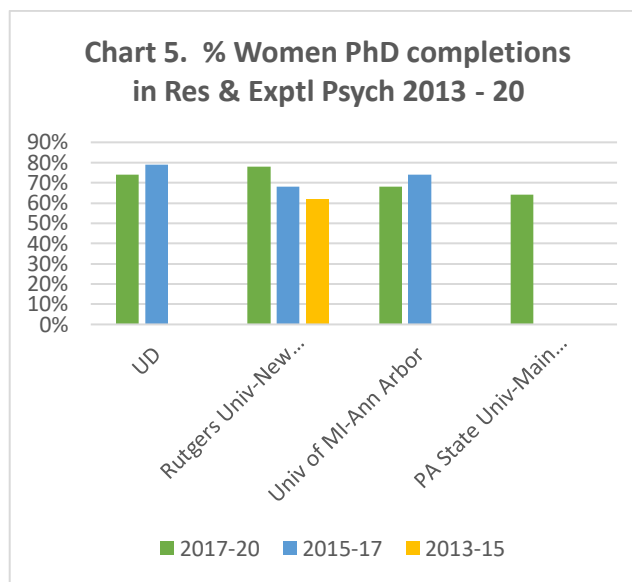
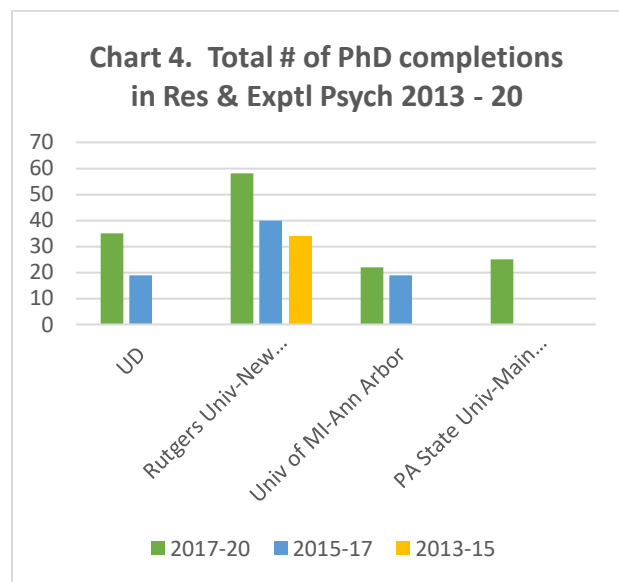
**[NOTE:** Penn State 2017-2020 data includes its 2020 numbers in which all its campuses were aggregated together whereas the Penn State data for the previous periods—2013-15 and 2015-17, represent data only from its Main campus.]

## Research and Experimental Psychology, CIP Code 42.2799

**Note:** Prior to 2016, doctoral graduates in Psychology at UD were reported to IPEDS under CIP Code 42.0101. Starting in 2016, doctoral graduates in Psychology were reported under the code 42.2799 – Research & Experimental Psychology.

Of the institutions being considered, only Rutgers, New Brunswick had PhD graduates in this research area over 2013-15. Total number was 34, with 62% women and 15% domestic URMs.

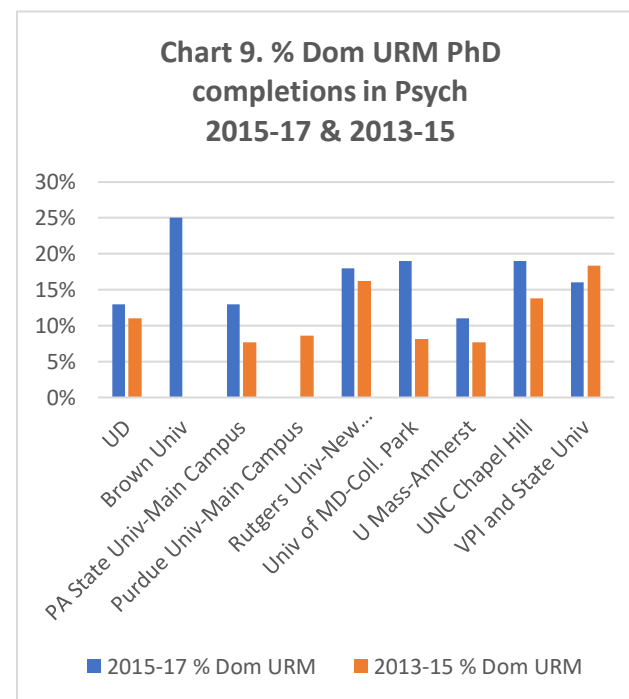
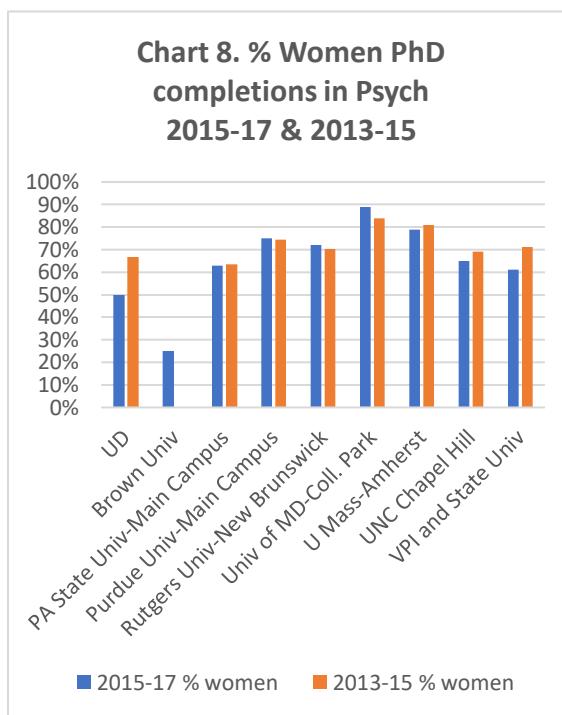
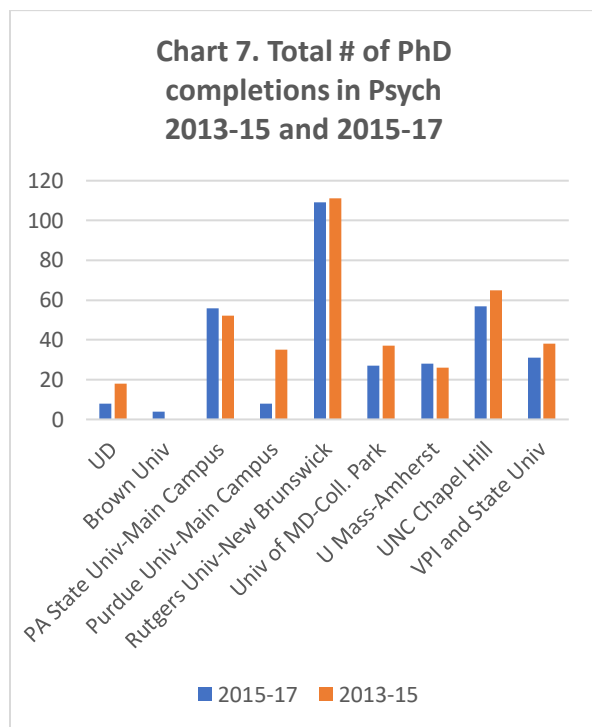
Since then, PhD completions in Research & Experimental Psychology have been reported by UD, Rutgers, University of Michigan and Penn State. % Women graduates is above 60% for all institutions over all periods University of Michigan has the largest % domestic URMs at > 40% over 2015 – 17 and 2017 – 20. UD had no domestic URMs in 2015-17 but had 6% over 2017-20 (Charts 4-6).



## Psychology, CIP Code 42.0101 (2013-15 and 2015-17)

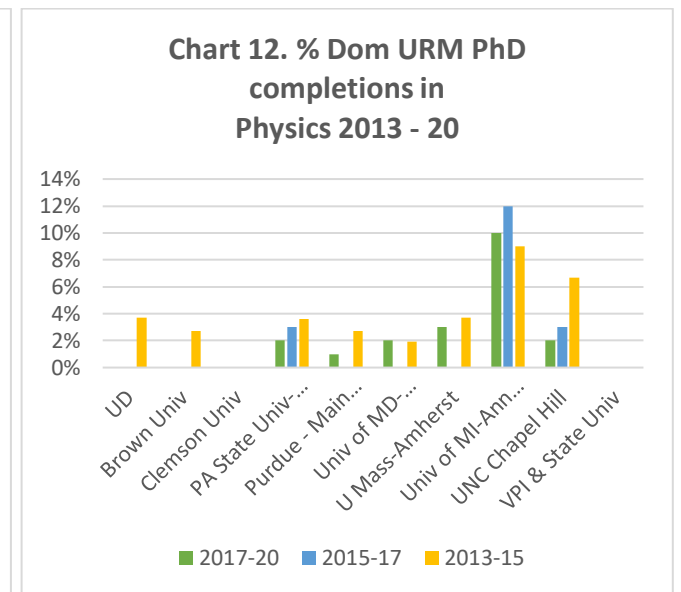
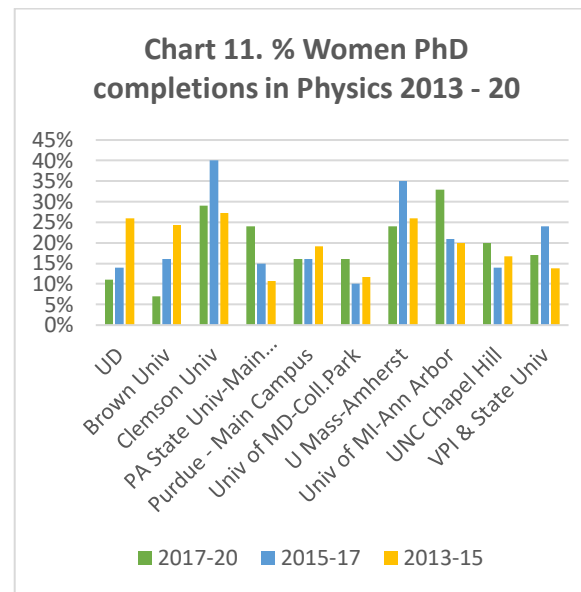
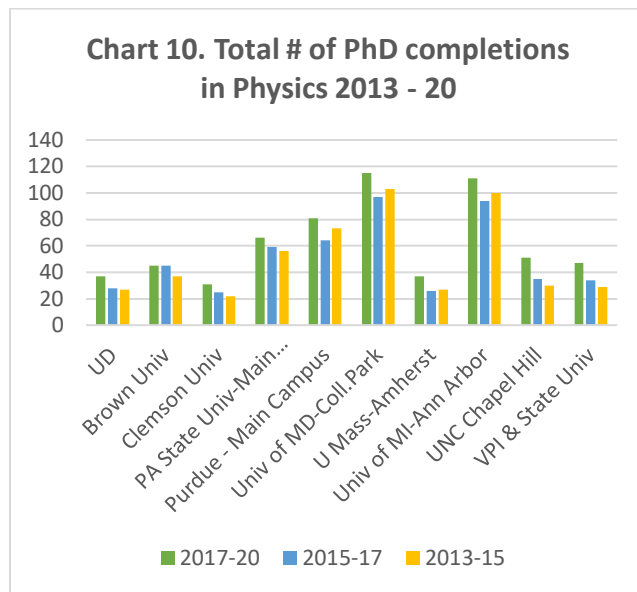
**Note:** Prior to 2016, doctoral graduates in Psychology at UD were reported to IPEDS under CIP Code 42.0101. Starting in 2016, doctoral graduates in Psychology were reported under the code 42.2799 – Research & Experimental Psychology.

Among the comparator institutions, Rutgers-New Brunswick had most PhD completions in Psychology in 2013-15 and 2015-17 (111 and 109 respectively) with ~70% women and 16% -18% domestic URMs. At UD, the total number of completions was 18 in 2013-15 and 8 in 2015-17 (note new CIP Code as at 2016, and completions in that area as shown above), % women fell from 67% to 50% with % domestic URM hovering around 12%. In all institutions being considered, except for Brown, the percentage of women graduating was 50% or greater. (Charts 7-9).



## Physics, CIP Code 40.0801

University of Michigan, Ann Arbor and University of Maryland, College Park had the highest number of PhD completions in Physics over each period, with % women graduates being 20 - 33% at Univ of Michigan and 10 - 16% at Univ of Maryland. Clemson and UMass Amherst had % women graduates ranging from 27% - 40% and 24% - 35% respectively. Over the three periods, % domestic URM students among all institutions being considered ranged from 0 to 12%, with many periods where there were no domestic URM students in many institutions. In each period, Univ of Michigan had the highest percentage of domestic URM students (9% - 12%). At UD, % women and % domestic URM students fell from 26% and 4% respectively over 2013-15 to 11% and 0% respectively over 2017-20 (Charts 10-12).

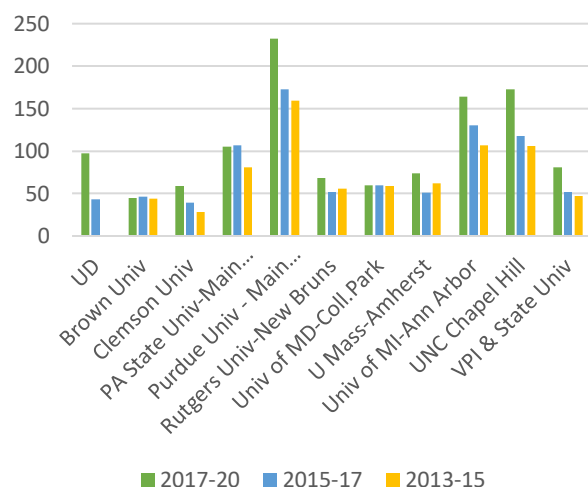


## Chemistry, CIP Code 40.0501

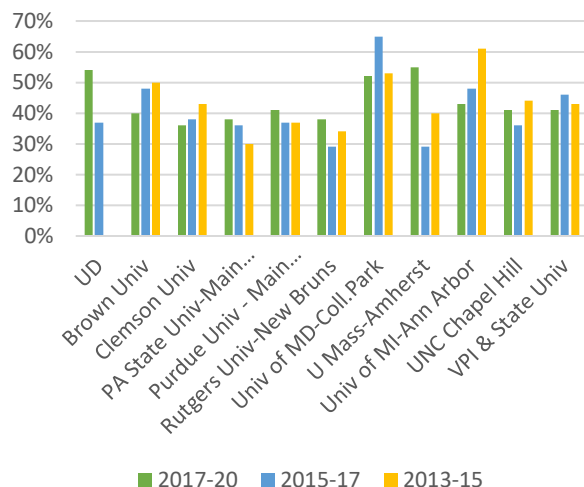
Prior to 2016, doctoral graduates in Chemistry and Biochemistry at UD were reported to IPEDS under CIP Code 26.0202. Starting in 2016, doctoral graduates in Chemistry and Biochemistry at UD have been reported under CIP code 40.0501. The data here then, shows no graduates at UD under CIP Code 40.0501 for the period 2013-15, and a relatively large number under CIP Code 26.0202 (see page 10, Charts 22 – 24).

Purdue University had the largest number of PhD completions in Chemistry over all periods being considered, with 159 in 2013-15, 173 (2015-17) and 232 (2017-20). Percentage women graduates was 37-41% at Purdue over the period. At the institutions being reviewed, % female PhD graduates in Chemistry for 2017-20 ranged from 36% at Clemson to 55% at University of Massachusetts - Amherst, and hovers around 40% overall. Over the years, % domestic URMs ranged from a low of 0% to a high of 12%. At UD, % women in 2017-20 was 54% and domestic URMs 4%. (Charts 13-15).

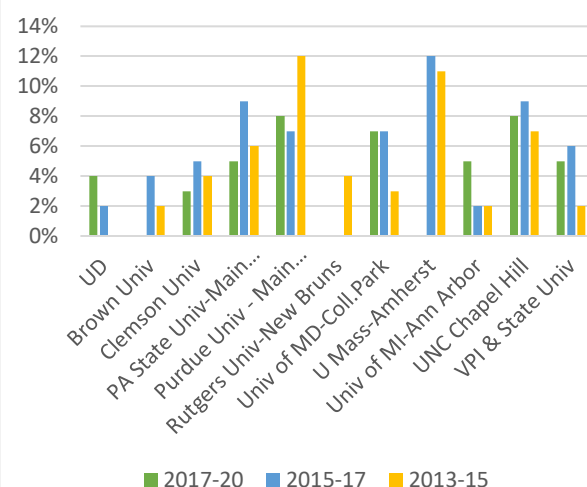
**Chart 13. Total # of PhD completions in Chemistry 2013 - 20**



**Chart 14. % Women PhD completions in Chemistry 2013 - 20**

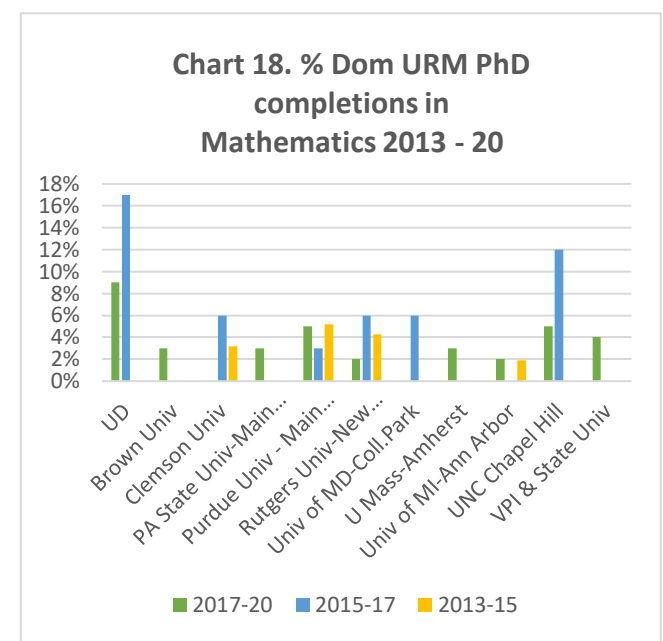
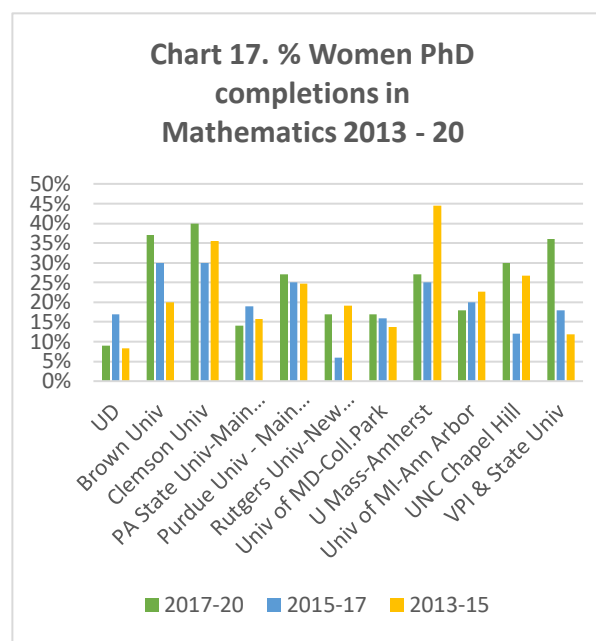
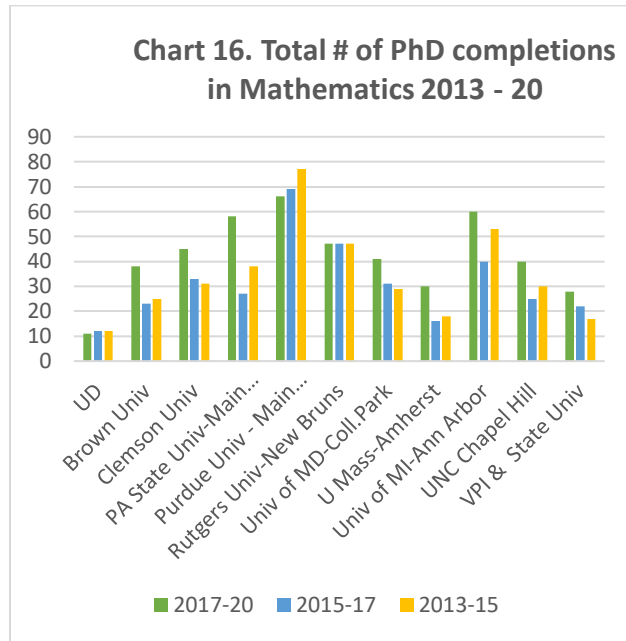


**Chart 15. % Dom URM PhD completions in Chemistry 2013 - 20**



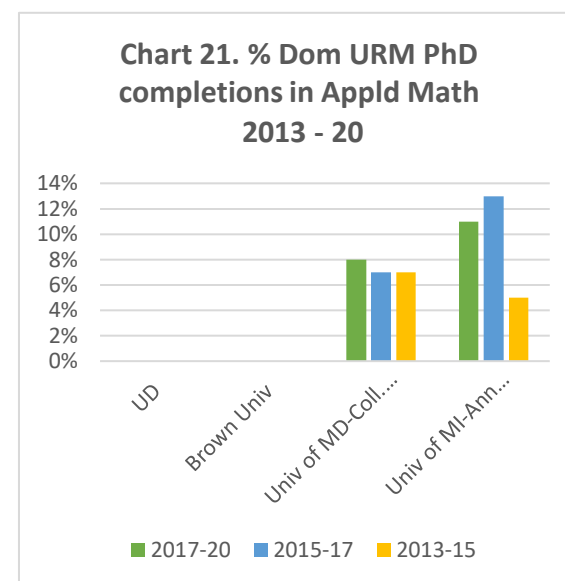
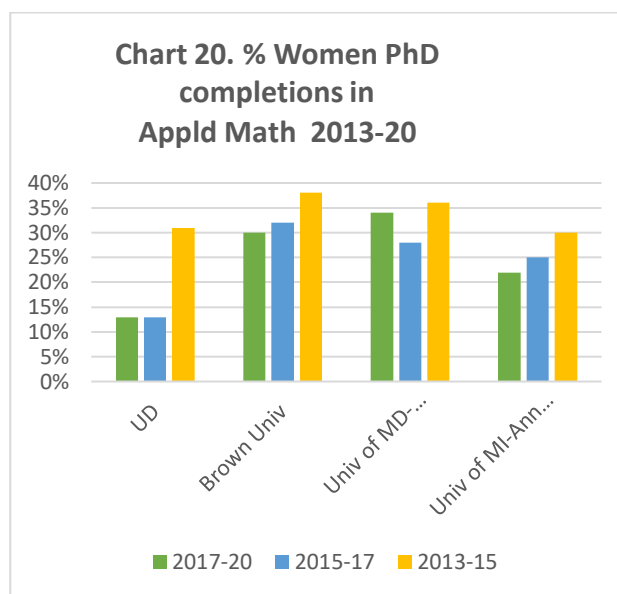
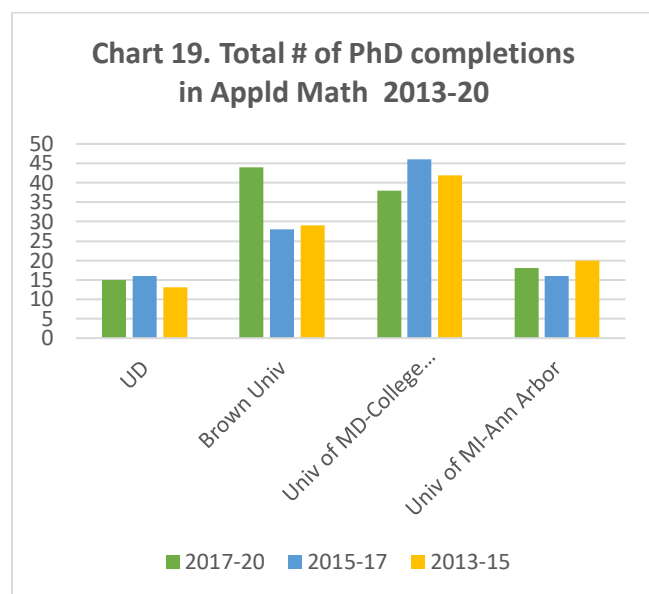
## Mathematics, CIP Code 27.0101

Purdue University had the largest number of PhD completions in Mathematics over each of the three periods, with women making up about 25% of each group, and domestic URMs at 3 – 5%. UD had 11 - 12 completions in each period, with % women ranging from 8% to 17% and domestic URMs from 0% to a high of 17% over the periods (Charts 16-18).



## Applied Mathematics, CIP Code 27.0301

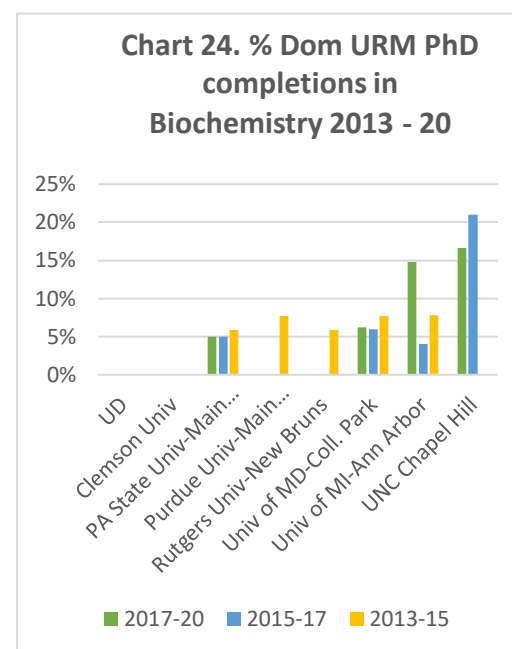
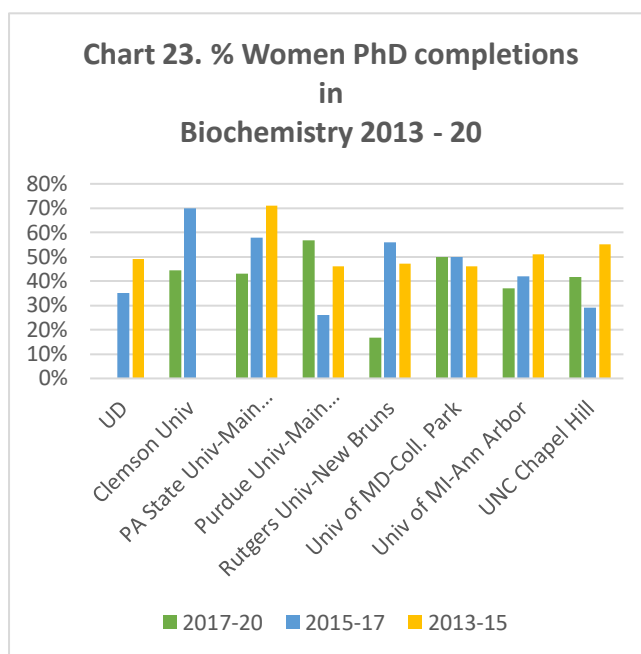
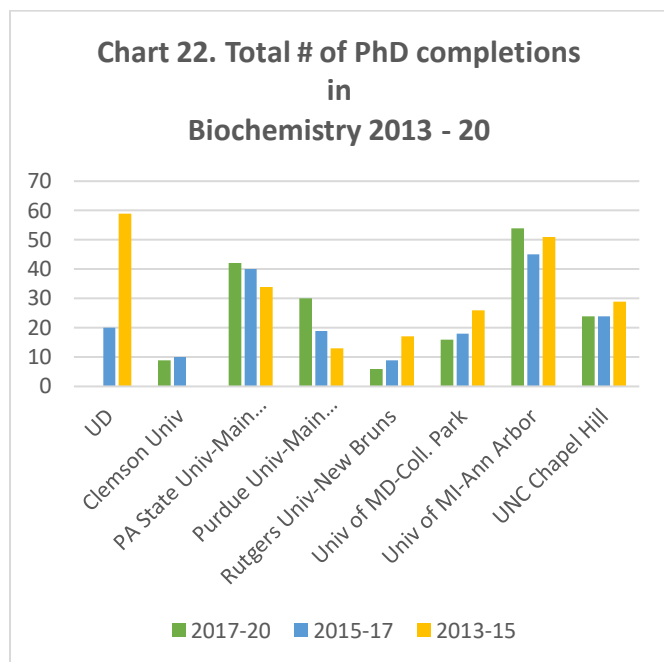
Only three of our comparator institutions had PhD completions in Applied Mathematics over the periods under consideration. Univ of Maryland and Brown had most graduates and % women hovered around 28 - 38%. UD saw a reduction in female graduates from 31% in 2013-15 to 13% in 2015-17 and in 2017-20. There were no domestic URM completions in Applied Mathematics at UD or Brown over the entire period under review (Charts 19 – 21).



## Biochemistry, CIP Code 26.0202

As has been stated earlier, over 2013 -15, PhD Chemistry and Biochemistry was reported under the CIP Code 26.0202. Since that time, graduates in Chemistry and Biochemistry at UD have been reported under the Chemistry CIP Code 40.0501. The data here then, shows a relatively large number of Biochemistry PhD completions at UD over the period 2013-15.

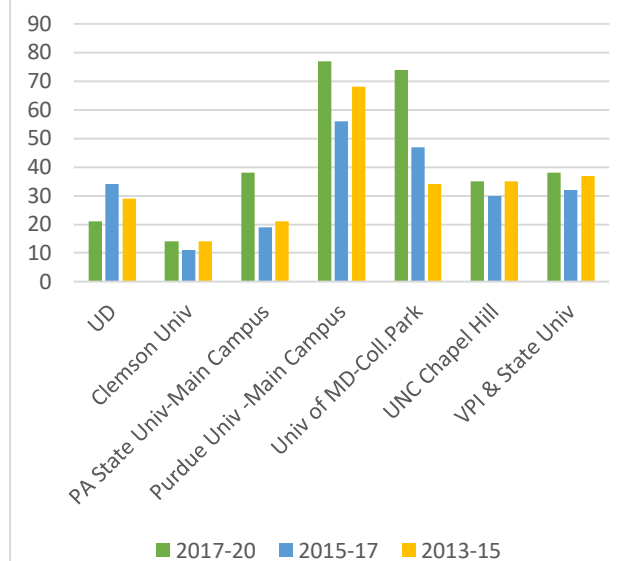
Among our comparator institutions, University of Michigan has most PhD completions in Biochemistry. % Women graduates was > 40% in most periods for most schools. Since 2015, % domestic URMs has been highest at UNC Chapel Hill. At UD, there were no domestic URM completions in this area over 2013-15 (Charts 22 – 24).



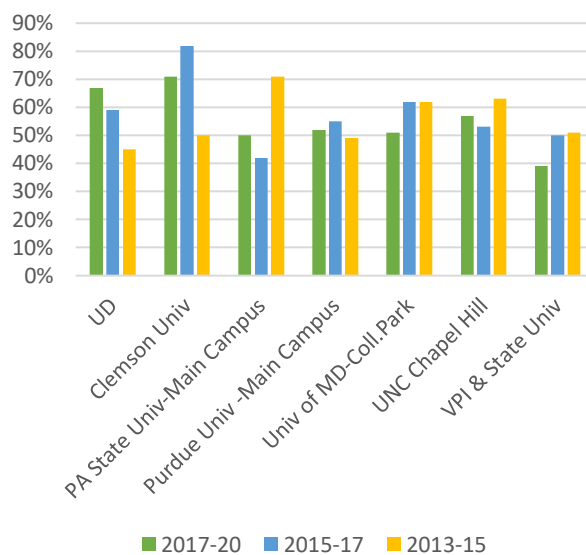
## Biology, CIP Code 26.0101

Of the institutions under review, Purdue University, Main Campus and University of Maryland, College Park had most PhD completions in Biology in 2017-20. In each period under consideration, % female graduates in Biology was over 50% for most schools, with domestic URM ranging from 0 – 16%. At UD, % women graduates increased steadily from 45% – 67%, but % domestic URMs decreased from 10% – 0% (Charts 25 – 27).

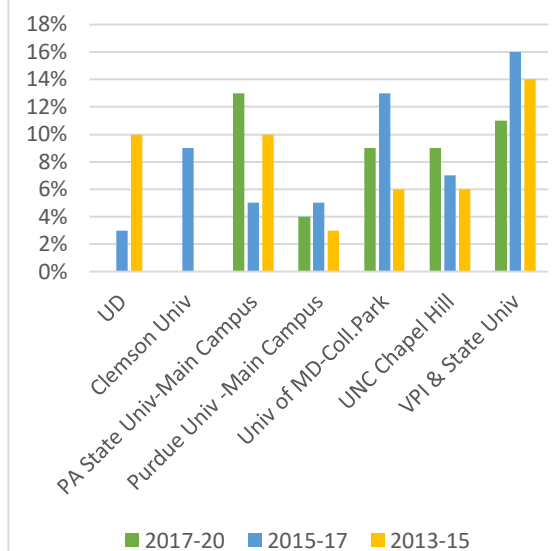
**Chart 25. Total # of PhD completions in Biology 2013 - 20**



**Chart 26. % Women PhD completions in Biology 2013 - 20**



**Chart 27. % Dom URM PhD completions in Biology 2013 - 20**



## Linguistics, CIP Code 16.0102

Our data show total number of PhD completions in Linguistics over 2013-15 from UD and only two comparator institutions – Penn State and University of Maryland. Over that period, % women graduates ranged from 56% to 67% and there were no domestic URMs in any of the institutions being considered.

Since 2015, there have been more graduates in Linguistics from our comparator institutions, with Penn State having 21 graduates in 2017 – 20, of which 62% were women. Penn State had highest % domestic URMs over 2015-17 (16%) and 2017 – 20 (14%). Over the three periods under consideration, UD had no domestic URM graduates in Linguistics (Charts 28 – 30).

