

# Faculty Salary Analysis

Cover Sheet	Introduction	Methodology and Analysis	Preface to the Results	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences
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## 2021-2022 Faculty Salary Analysis

January 28, 2022

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## Data

- Assistant Professor, Associate Professor, and Professor ranks are included; ranks of Instructor and Senior Instructor are excluded, except for Physical Education and Athletics
- Both tenure and non-tenure streams
- The analysis for the School of Medicine excludes faculty in clinical departments and dual-paid faculty in the basic sciences (i.e., those with salary from both CWRU and an affiliated hospital)
- The analysis for Physical Education and Athletics combined Assistant and Associate Professors to allow for a comparison between women and men
- Analyses were conducted on base salary
- Salaries for the School of Medicine and School of Dental Medicine are based on 12-month appointments
- Salaries for all other schools are adjusted to a 9-month equivalent appointment and are adjusted to 100% effort to allow comparison
- Data are from Fall 2021. Changes made after November 1, 2021 are not reflected in this analysis

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## Regression Analysis

- A separate regression is conducted for each school or division
- The dependent variable in the analyses is the 9-month equivalent base salary at 100% effort (1.0 FTE) for all except the School of Medicine and the School of Dental Medicine
- The dependent variable for the School of Medicine and School of Dental Medicine is the 12-month salary, which includes incentive pay
- The independent variables in the analyses are age, rank, years in rank, tenure status, years since hire, and highest degree
- Using a multiple regression analysis, a predicted salary value is calculated for each faculty member
- This predicted salary value is compared to the faculty member's actual salary, and "residual" values are calculated from the difference between actual and predicted salary values

## Limitations of the Analysis

- These analyses may be subject to outlying data points. That is, faculty with salaries near the extremes may impact residual values for the rest of their group
- There is no measure of productivity in the regression analysis
- Examining residuals by group is a "broad brush" technique for highlighting where differences **might** exist
- Analysis is **strongly** affected by extreme high or low values. No outliers were removed to reflect actual salary distributions

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## Preface to the Results

The results are presented on the following pages using three separate charts:

- The first is a bar graph charting average salary by rank and sex. Assistant, Associate, and full Professors are included, where average actual salaries are presented for women and men. In cases where there are less than four cases, no average was computed and the graphs are suppressed.
- Second, there is a table depicting the percentage of cases that fall above and below the regression line for men and women. Falling above the line indicates an actual salary greater than predicted, whereas actual salary was lower than predicted when falling below the line.
- Lastly, the average unstandardized residuals for men and women were plotted using a bar chart. This allows for the exploration of disparity in real dollars as averaged out across groups. Positive values indicate greater actual salaries than predicted, while negative values reflect consistently lower actual salaries than predicted.

For all charts and graphs, the color blue represents women and orange represents men.

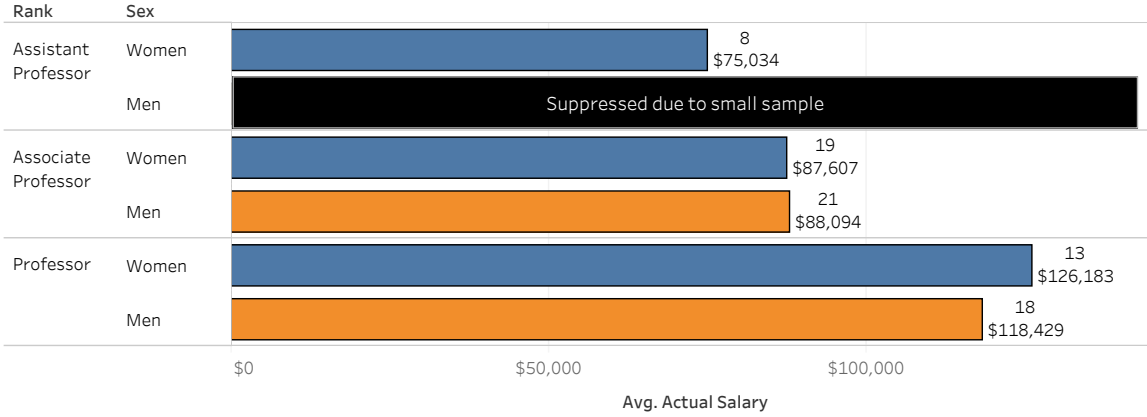
Data consisting of fewer than four cases are suppressed for privacy.

# Faculty Salary Analysis

Introduction	Methodology and Analysis	Preface to the Results	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering
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## Average Salary by Sex and Rank: Arts and Humanities

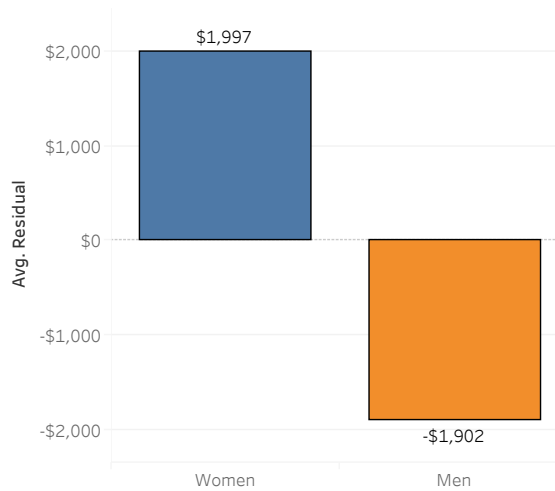
School/Division  
Arts and Humanities



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	48%
	Below the line	53%
Men	Above the line	38%
	Below the line	62%

## Average Residuals

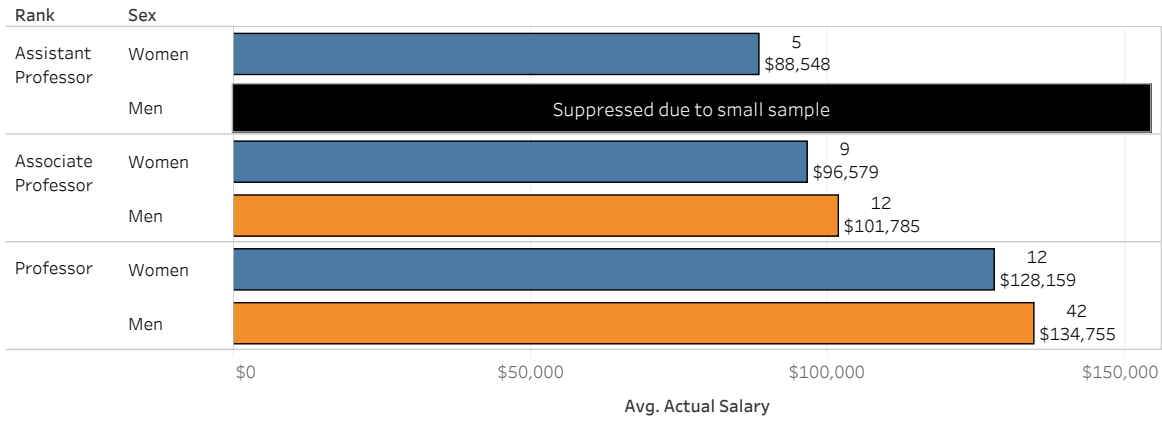


# Faculty Salary Analysis

Methodology and Analysis	Preface to the Results	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Sciences
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## Average Salary by Sex and Rank: Math and Natural Sciences

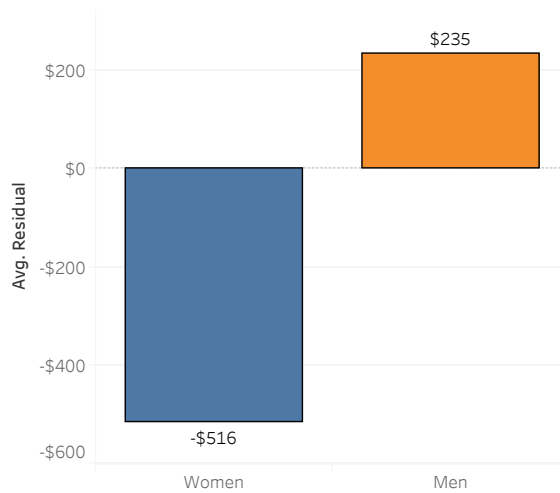
School/Division  
Math and Natural Sciences



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	58%
	Below the line	42%
Men	Above the line	46%
	Below the line	54%

## Average Residuals

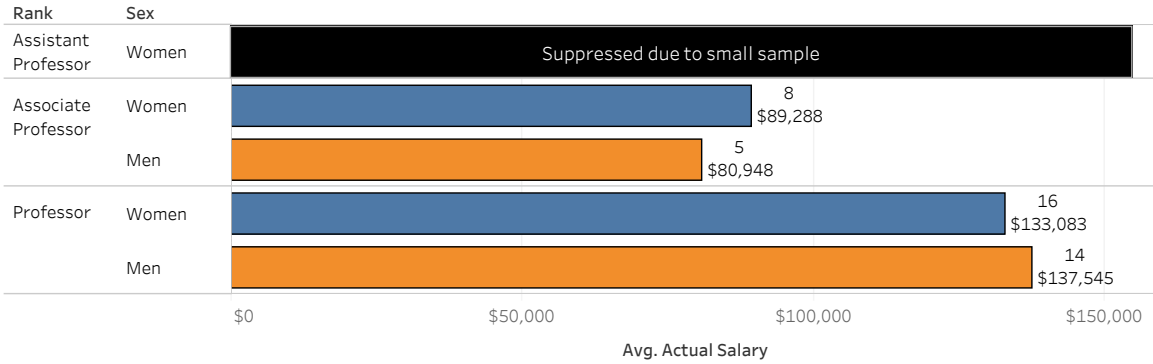


# Faculty Salary Analysis

Preface to the Results	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	Weatherhead School of Manag..
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## Average Salary by Sex and Rank: Social Sciences

School/Division  
Social Sciences



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	67%
	Below the line	33%
Men	Above the line	42%
	Below the line	58%

## Average Residuals

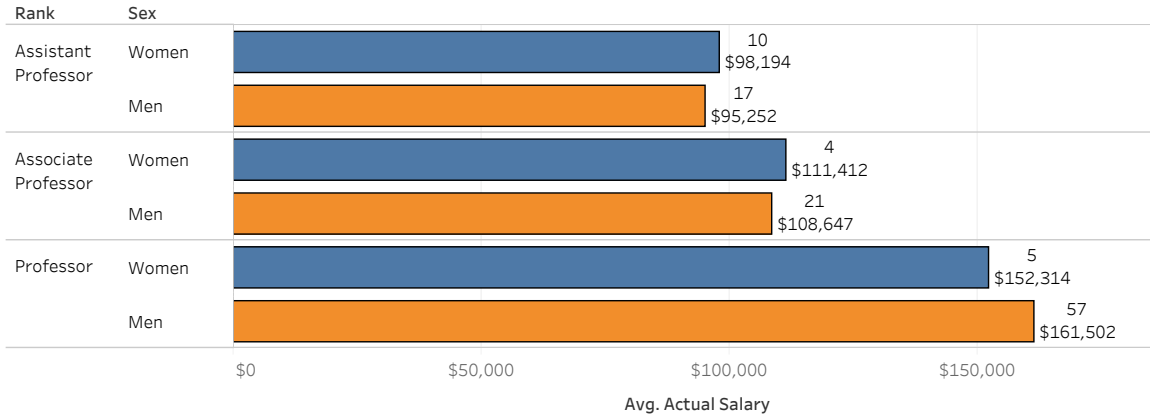


# Faculty Salary Analysis

College of Arts and Sc..	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	<b>Case School of Engineering</b>	Mandel School of Applied Social Sciences	Weatherhead School of Management	School of Law
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## Average Salary by Sex and Rank: Engineering

School/Division  
Engineering



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	58%
	Below the line	42%
Men	Above the line	45%
	Below the line	55%

## Average Residuals



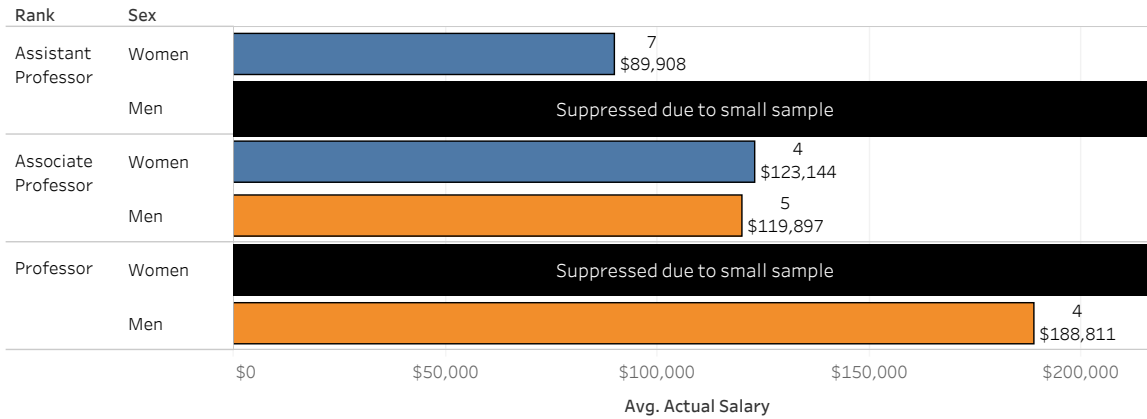


# Faculty Salary Analysis

College of Arts and Sc..	College of Arts and Sciences: Social Sciences	Case School of Engineering	<b>Mandel School of Applied Social Sciences</b>	Weatherhead School of Management	School of Law	Frances Payne Bolton Sc..
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## Average Salary by Sex and Rank: Applied Social Sciences

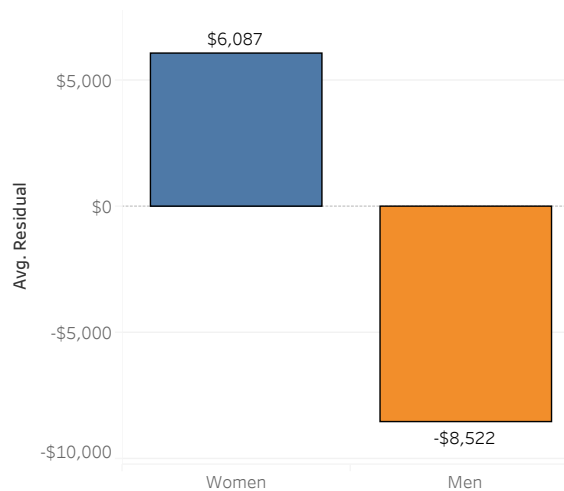
School/Division  
Applied Social Sciences



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	50%
	Below the line	50%
Men	Above the line	30%
	Below the line	70%

## Average Residuals

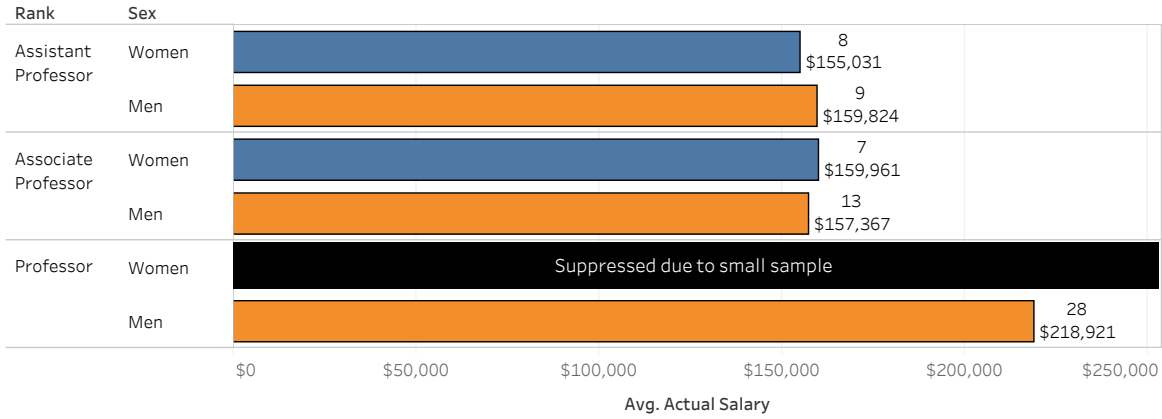


# Faculty Salary Analysis

College of Arts and Sc..	Case School of Engineering	Mandel School of Applied Social Sciences	<b>Weatherhead School of Management</b>	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sci..
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## Average Salary by Sex and Rank: Management

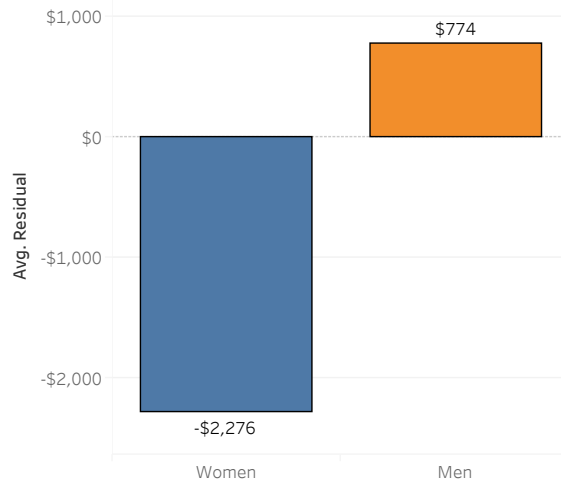
School/Division  
Management



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	41%
	Below the line	59%
Men	Above the line	48%
	Below the line	52%

## Average Residuals

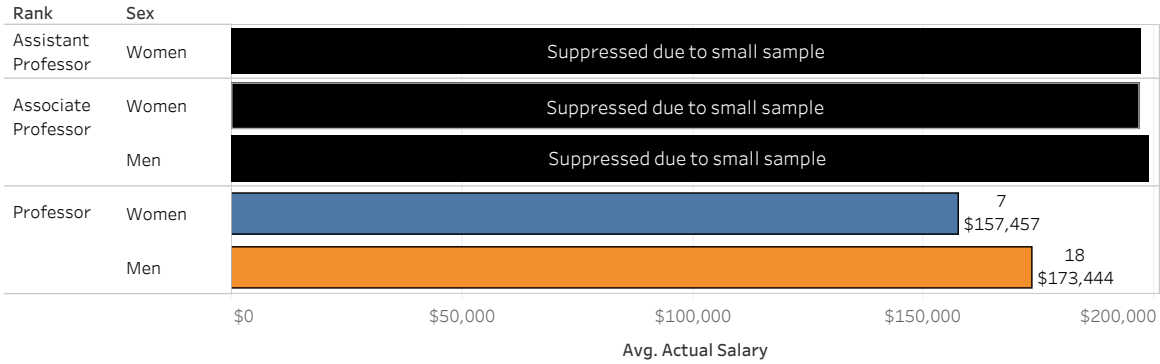


# Faculty Salary Analysis

Case School of Engi..	Mandel School of Applied Social Sciences	Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sciences (Base+Incentive)	School of Dental Medicine
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## Average Salary by Sex and Rank: Law

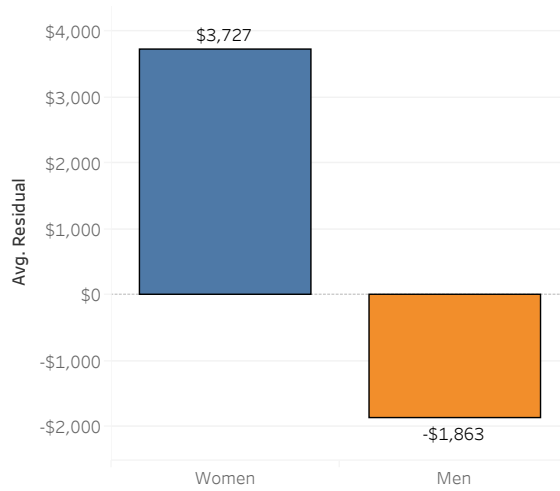
School/Division  
Law



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	60%
	Below the line	40%
Men	Above the line	35%
	Below the line	65%

## Average Residuals

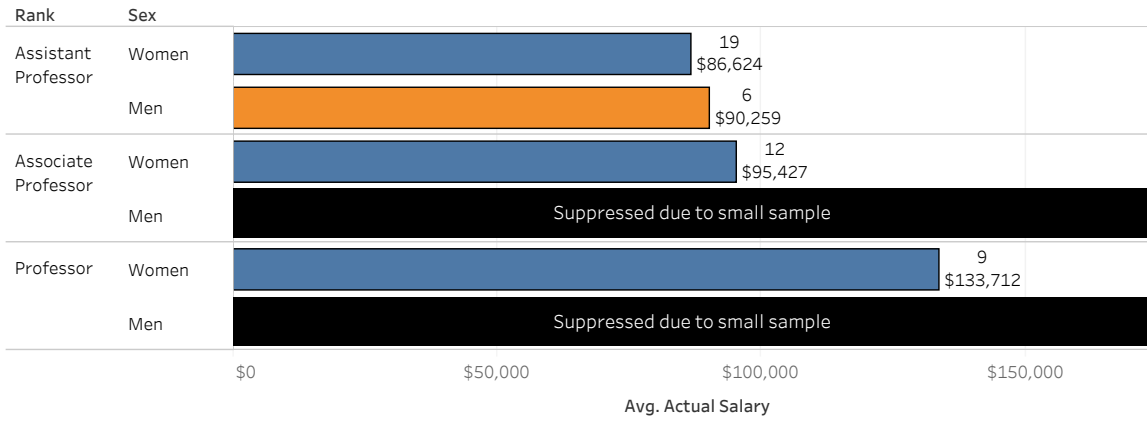


# Faculty Salary Analysis

Mandel School of A..	Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sciences (Base+Incentive)	School of Dental Medicine	University General: Physical..
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## Average Salary by Sex and Rank: Nursing

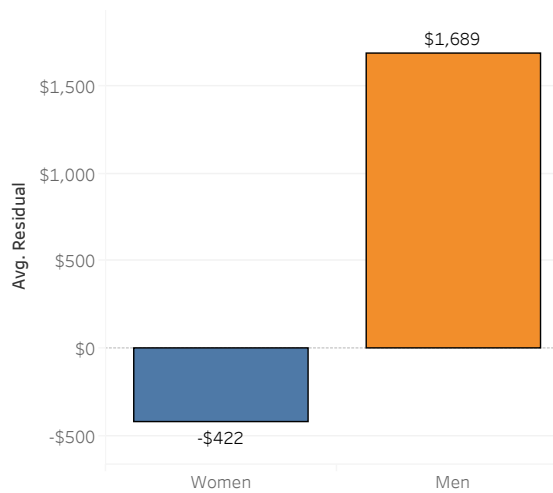
School/Division  
Nursing



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	43%
	Below the line	58%
Men	Above the line	40%
	Below the line	60%

## Average Residuals

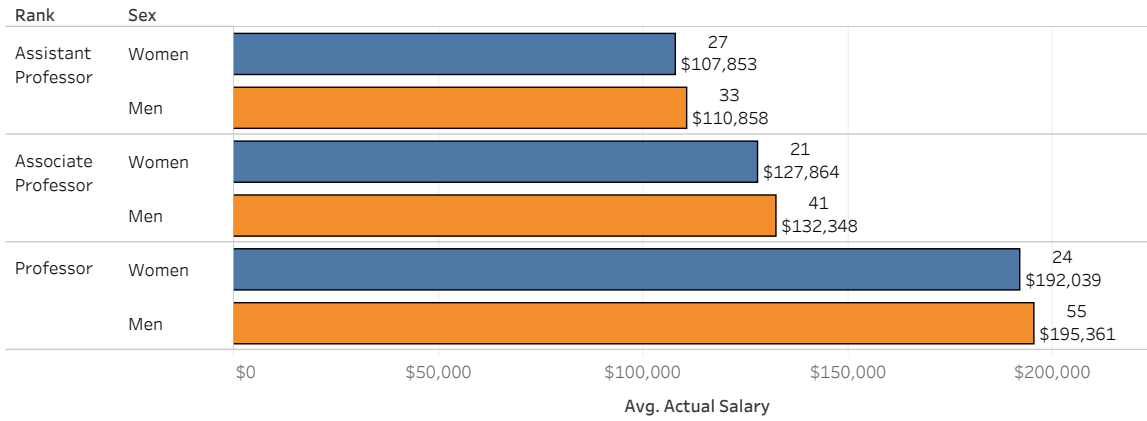


# Faculty Salary Analysis

Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sciences (Base+Incentive)	School of Dental Medicine	University General: Physical Education and Athletics
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## Average Salary by Sex and Rank: Medicine

School/Division  
Medicine



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	46%
	Below the line	54%
Men	Above the line	42%
	Below the line	58%

## Average Residuals

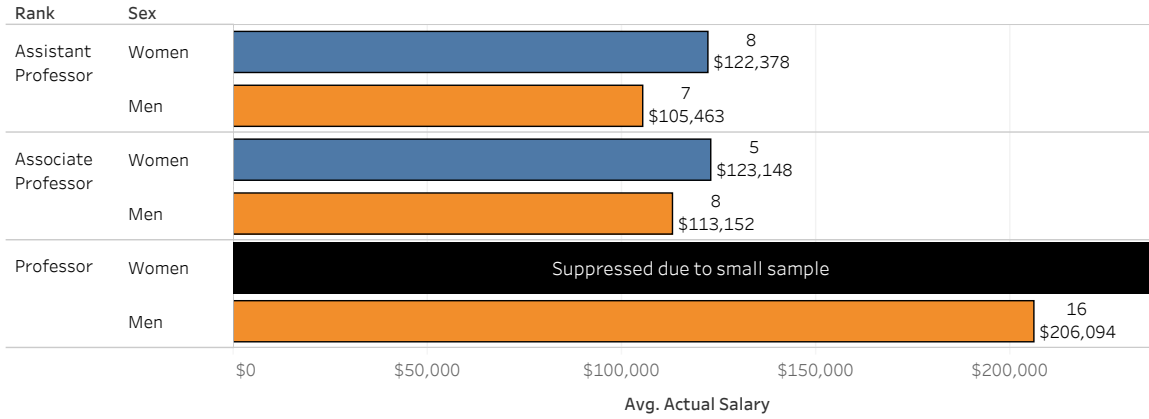


# Faculty Salary Analysis

Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sciences (Base+Incentive)	<b>School of Dental Medicine</b>	University General: Physical Education and Athletics
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## Average Salary by Sex and Rank: Dental Medicine

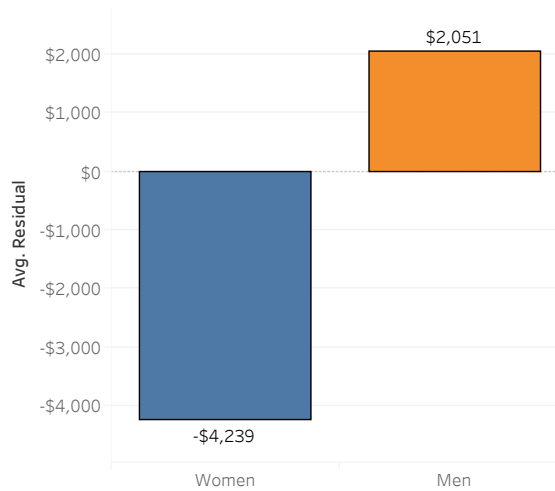
School/Division  
Dental Medicine



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	33%
	Below the line	67%
Men	Above the line	39%
	Below the line	58%
	On the line	3%

## Average Residuals

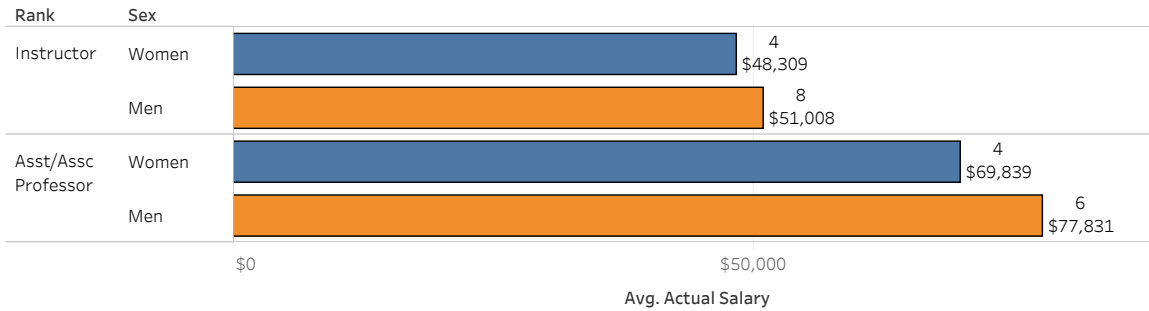


# Faculty Salary Analysis

Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing	School of Medicine: Basic Sciences (Base+Incentive)	School of Dental Medicine	University General: Physical Education and Athletics
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## Average Salary by Sex and Rank: PE/Athletics

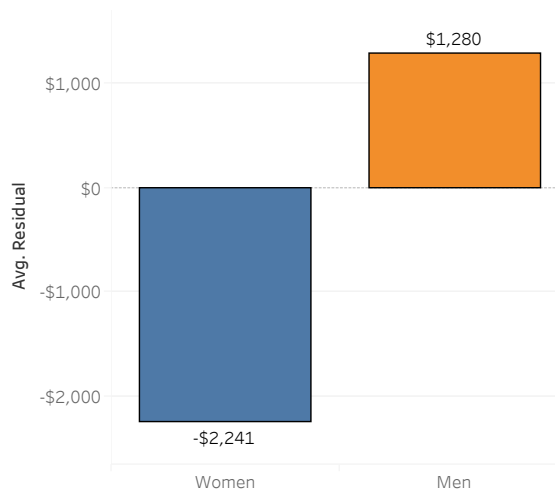
School/Division  
PE/Athletics



## Above or Below the Line

Sex	Above or Below	Percentage
Women	Above the line	38%
	Below the line	63%
Men	Above the line	50%
	Below the line	50%

## Average Residuals



# Faculty Salary Analysis: Summer and Administrative Supplements

Summer and Administrative Salaries	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences
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## Summer and Administrative Supplements

The next section provides data on Summer and Administrative salaries, broken down by school/division, for men and women.

Data from the School of Medicine and the School of Dental Medicine are not provided. There are no summer earnings for those on 12-month contracts and administrative supplement data are incomplete.

Data remain suppressed in instances where there are fewer than four faculty.

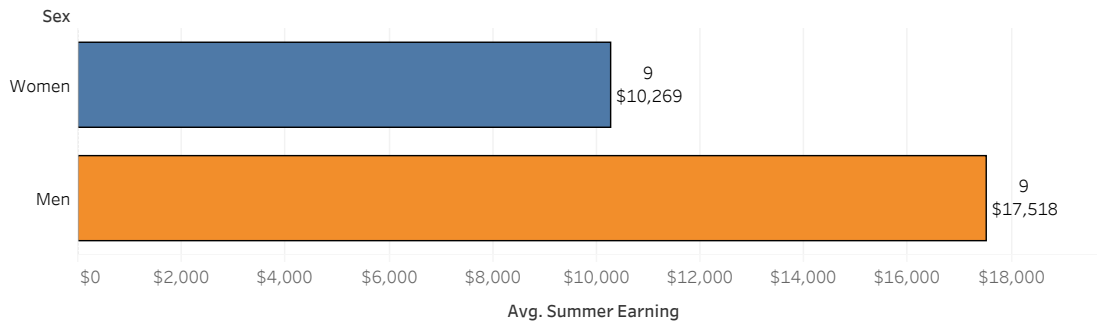


# Faculty Salary Analysis: Summer and Administrative Supplements

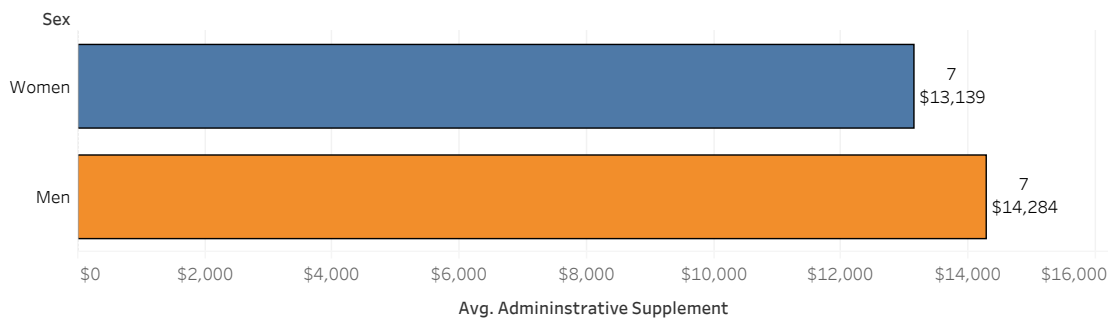
Summer and Administrative Salaries	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences
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## Average Summer Salaries: Arts and Humanities

School/Division  
Arts and Humanities



## Average Administrative Supplements: Arts and Humanities

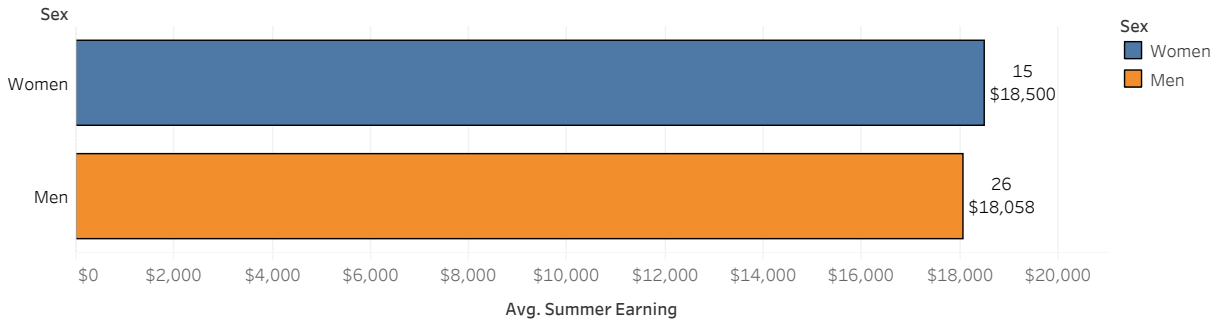


# Faculty Salary Analysis: Summer and Administrative Supplements

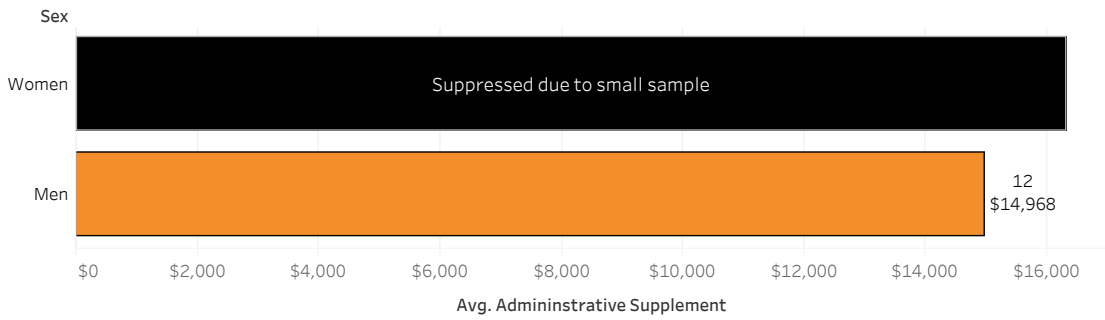
Summer and Administrative Salaries	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences
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## Average Summer Salaries: Math and Natural Sciences

School/Division  
Math and Natural Sciences



## Average Administrative Supplements: Math and Natural Sciences

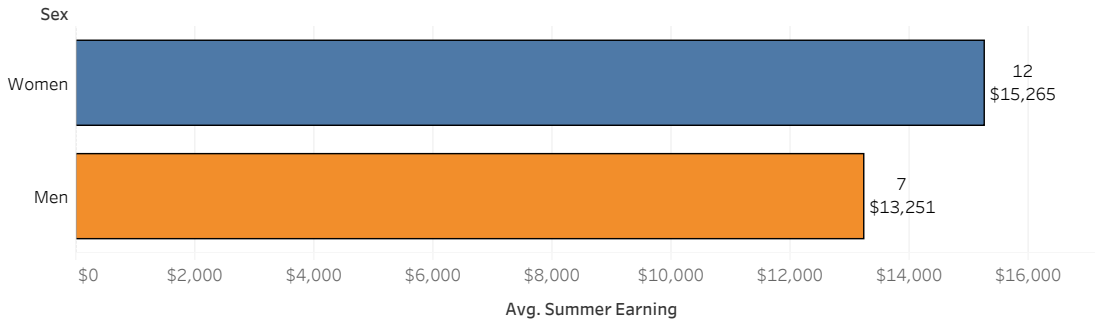


# Faculty Salary Analysis: Summer and Administrative Supplements

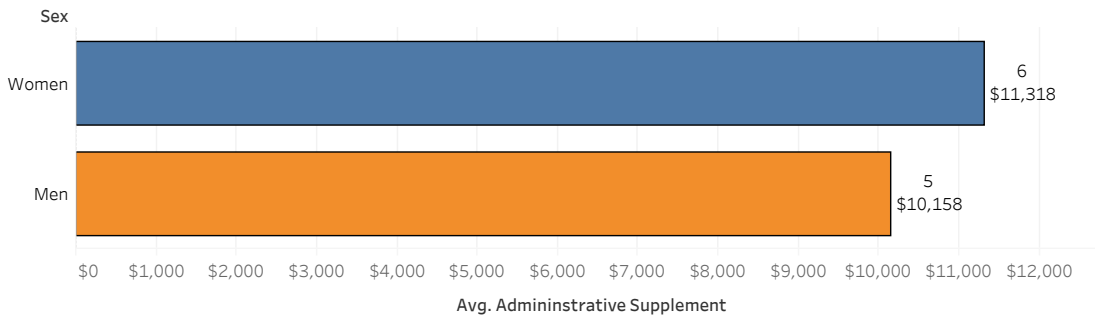
Summer and Administrative S..	College of Arts and Sciences: Arts and Humanities	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	Weatherhead School of Manage ..
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## Average Summer Salaries: Social Sciences

School/Division  
Social Sciences



## Average Administrative Supplements: Social Sciences

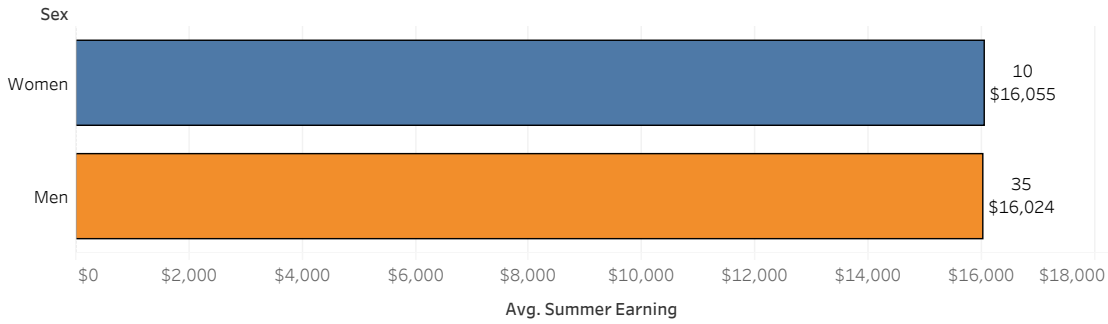


# Faculty Salary Analysis: Summer and Administrative Supplements

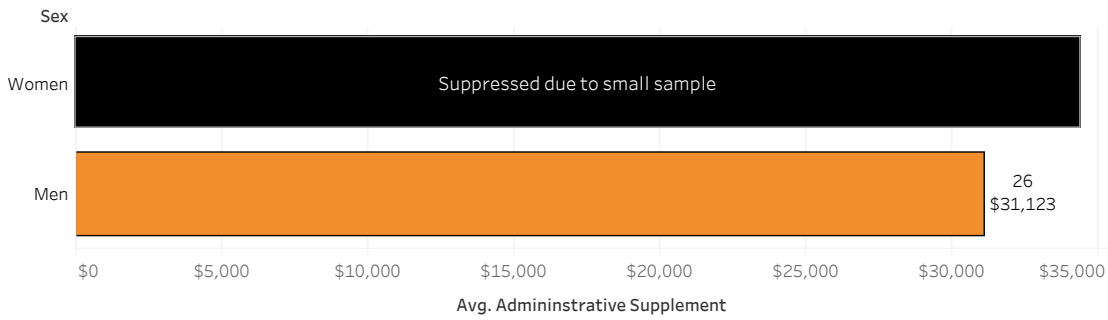
College of Arts and Sciences..	College of Arts and Sciences: Math and Natural Sciences	College of Arts and Sciences: Social Sciences	<b>Case School of Engineering</b>	Mandel School of Applied Social Sciences	Weatherhead School of Management	School of Law
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## Average Summer Salaries: Engineering

School/Division  
Engineering



## Average Administrative Supplements: Engineering

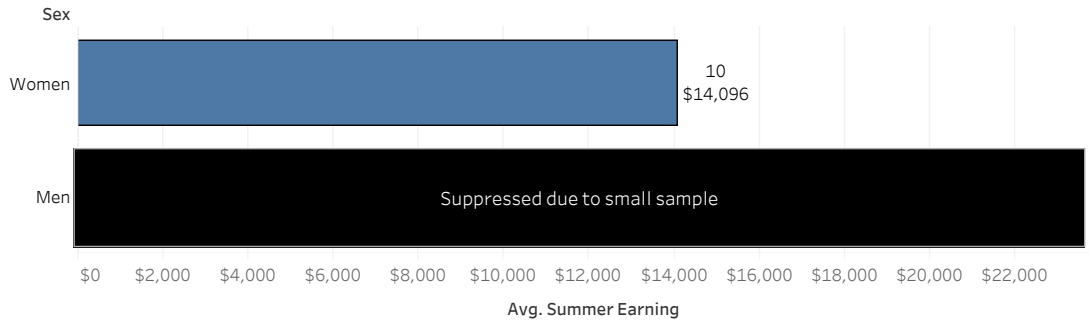


# Faculty Salary Analysis: Summer and Administrative Supplements

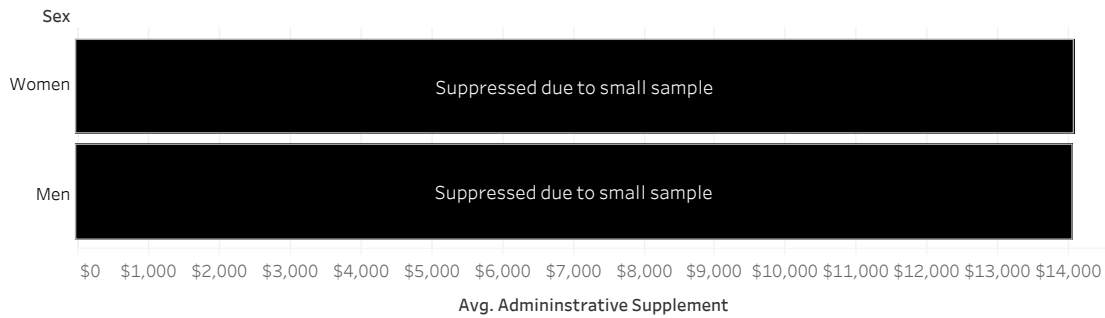
College of Arts and Sciences..	College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	Weatherhead School of Management	School of Law	Frances Payne Bolton School of ..
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## Average Summer Salaries: Applied Social Sciences

School/Division  
Applied Social Sciences



## Average Administrative Supplements: Applied Social Sciences

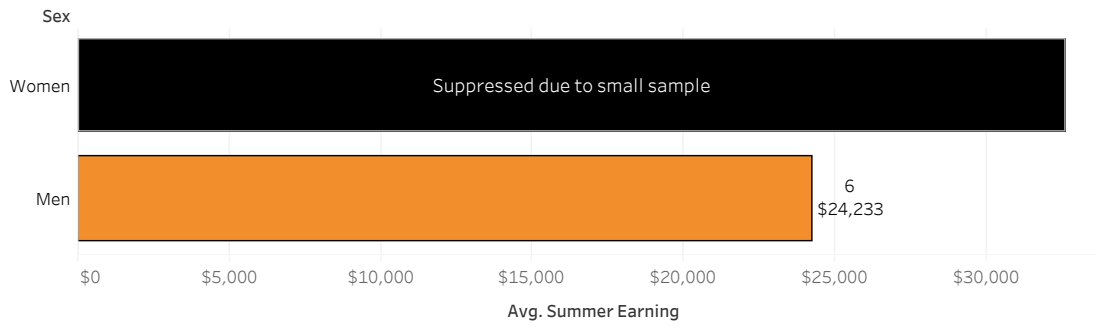


# Faculty Salary Analysis: Summer and Administrative Supplements

College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	<b>Weatherhead School of Management</b>	School of Law	Frances Payne Bolton School of Nursing
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## Average Summer Salaries: Management

School/Division  
Management



## Average Administrative Supplements: Management

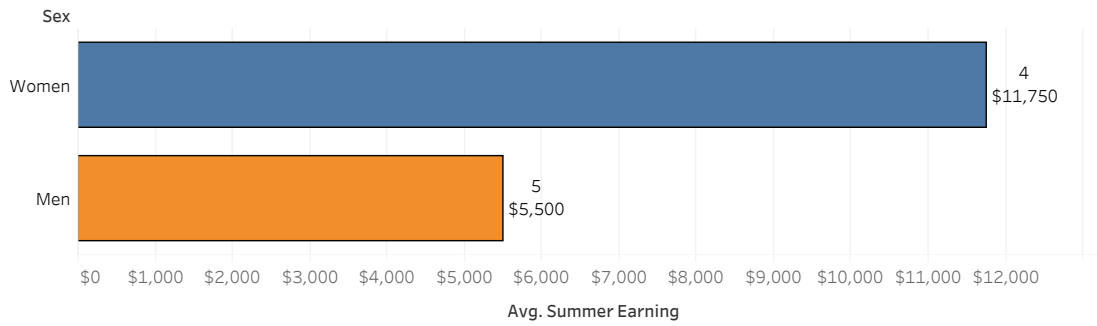


# Faculty Salary Analysis: Summer and Administrative Supplements

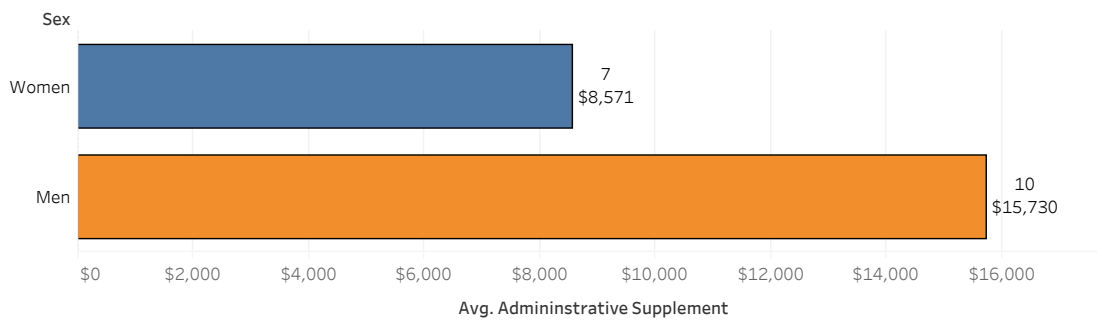
College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	Weatherhead School of Management	<b>School of Law</b>	Frances Payne Bolton School of Nursing
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## Average Summer Salaries: Law

School/Division  
Law



## Average Administrative Supplements: Law

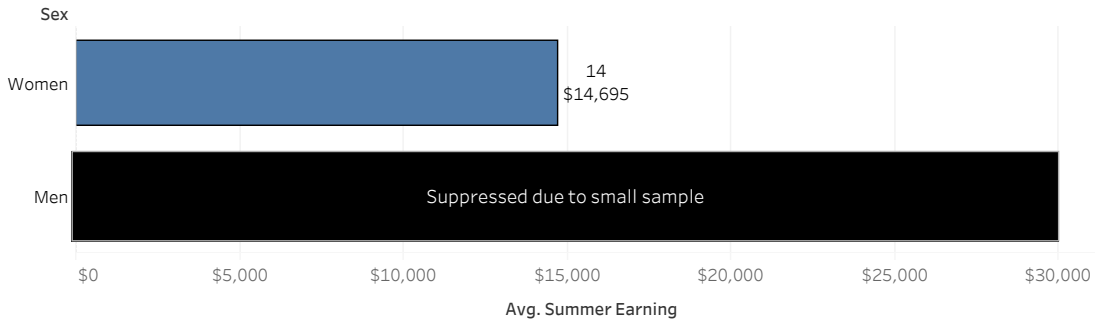


# Faculty Salary Analysis: Summer and Administrative Supplements

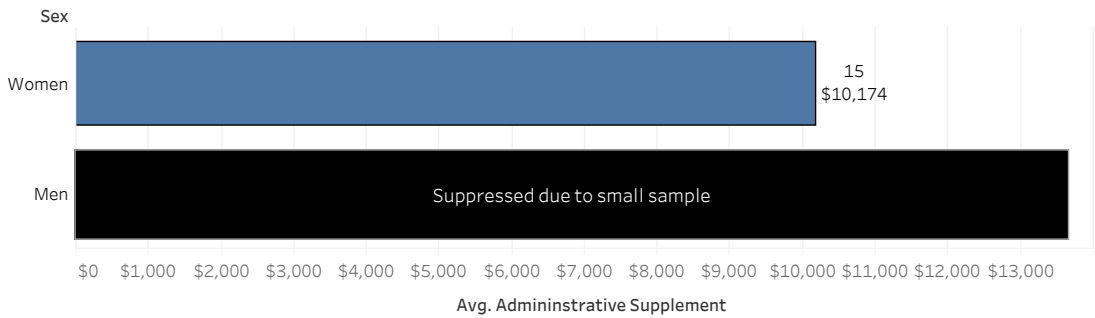
College of Arts and Sciences: Social Sciences	Case School of Engineering	Mandel School of Applied Social Sciences	Weatherhead School of Management	School of Law	Frances Payne Bolton School of Nursing
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## Average Summer Salaries: Nursing

School/Division  
Nursing



## Average Administrative Supplements: Nursing





## Faculty Salary Analysis: Analysis of Under-Represented Groups

Analysis of Under-Represented Groups	Frequencies and Percentages by School/Division	Salary by Rank and Group
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### Analysis of Under-Represented Groups

- Faculty salaries were also analyzed using race/ethnicity groupings to evaluate salaries of under-represented groups relative to faculty who are Asian or White
- The following pages provide the same representations that were conducted for rank by sex, but this time using rank by race/ethnicity category
- Due to the low number of faculty from under-represented groups, schools/divisions were combined in this analysis
- Faculty from PE/Athletics were excluded due to small group sizes in their ranks
- Faculty with unknown race/ethnicity were also excluded
- Data are suppressed when there are less than four faculty in a certain group

# Faculty Salary Analysis: Analysis of Under-Represented Groups

Analysis of Under-Represented Groups	Frequencies and Percentages by School/Division	Salary by Rank and Group
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## Race/Ethnicity Representation: Frequencies and Percentages by School

	School/Division										
	Applied Social Sciences	Law	Arts and Humanities	Dental Medicine	Engineering	Management	Math and Natural Sciences	Medicine	Nursing	PE/Athletics	Social Sciences
Under-Represented	4	3	7	6	5	3	6	6	7	2	1
Asian	1	1	7	9	30	18	8	45	2		3
White	19	26	66	29	76	43	67	145	40	19	42
International			1	2	3	3	2	5			

	School/Division										
	Applied Social Sciences	Law	Arts and Humanities	Dental Medicine	Engineering	Management	Math and Natural Sciences	Medicine	Nursing	PE/Athletics	Social Sciences
Under-Represented	17%	10%	9%	13%	4%	4%	7%	3%	14%	10%	2%
Asian	4%	3%	9%	20%	26%	27%	10%	22%	4%		7%
White	79%	87%	81%	63%	67%	64%	81%	72%	82%	90%	91%
International			1%	4%	3%	4%	2%	2%			

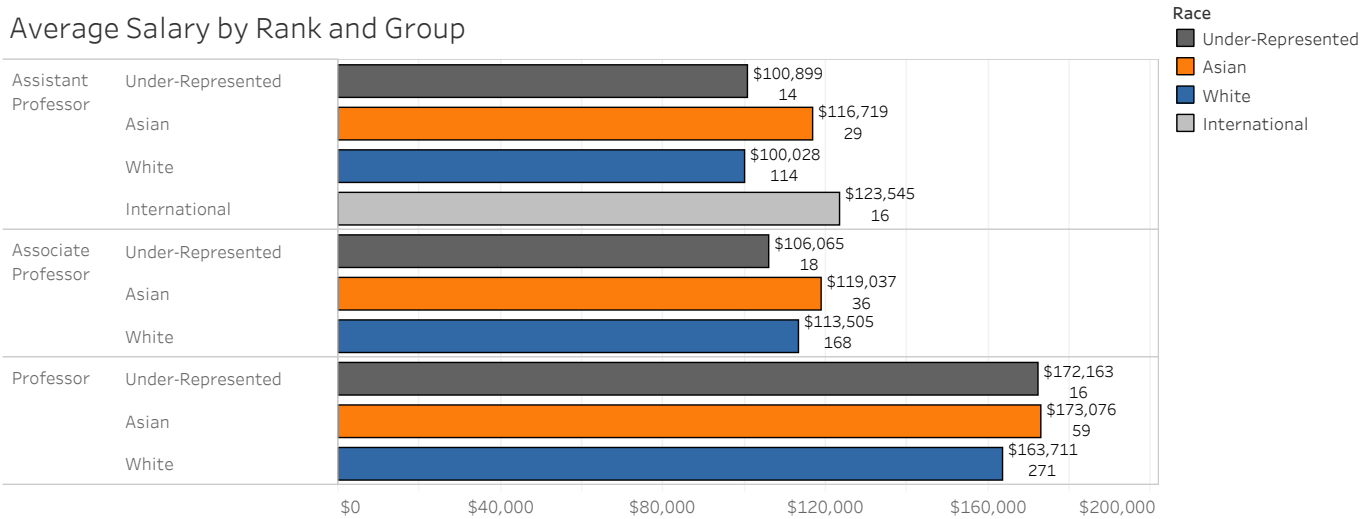
## Race/Ethnicity Representation by Rank

	Rank1		
	Assistant Professor	Associate Professor	Professor
Under-Represented	14	18	16
Asian	29	36	59
White	114	168	271
International	16		

# Faculty Salary Analysis: Analysis of Under-Represented Groups

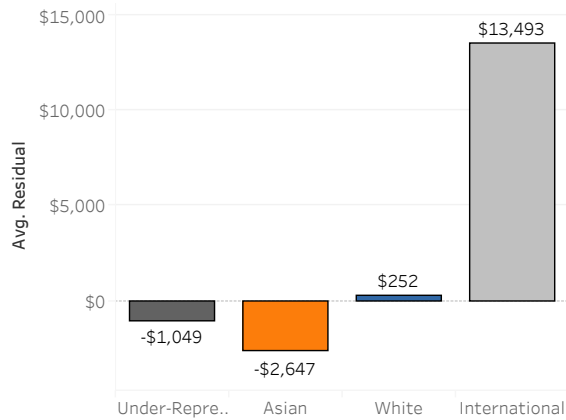
Analysis of Under-Represented Groups	Frequencies and Percentages by School/Division	Salary by Rank and Group
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## Average Salary by Rank and Group



Race	Category	Percentage
Under-Represented	Above the line	52%
	Below the line & On the line	48%
Asian	Above the line	42%
	Below the line & On the line	58%
White	Above the line	44%
	Below the line & On the line	56%
International	Above the line	75%
	Below the line & On the line	25%

## Residual by Group



# Longitudinal Analysis of Average Unstandardized Residuals

Longitudinal Analysis of Unstandardized Residual Values	College of Arts and Sciences: Humanities and Social Sciences	College of Arts and Sciences: Mathematics and Natural Sciences	Schools of Engineering and Applied Social Sciences	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + I..
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## Longitudinal Analysis

Data over the past ten years were analyzed together to determine trends in the average unstandardized residual values (i.e., the difference between actual and predicted salaries). This part of the analysis focused strictly on the differences between men and women.

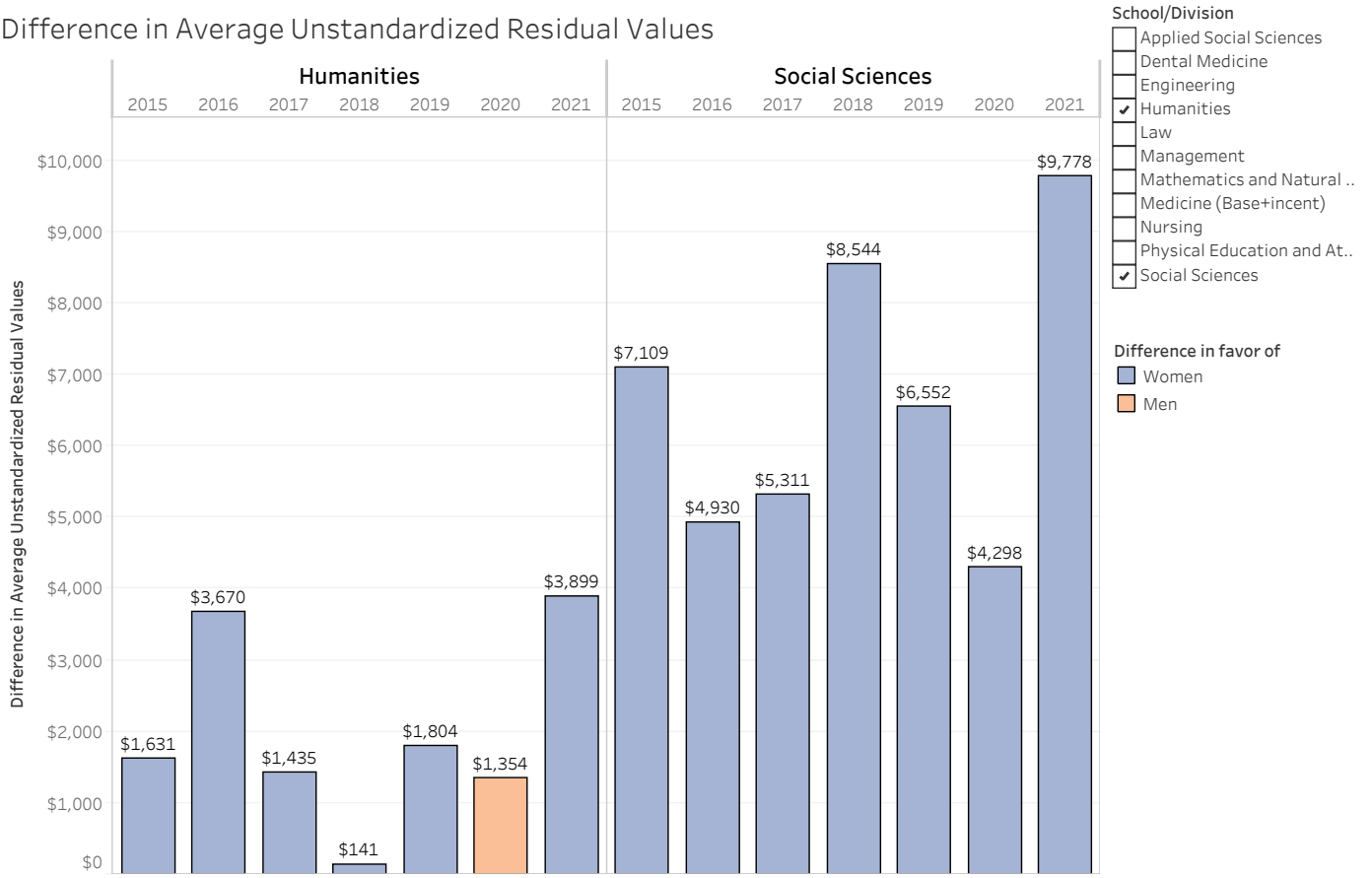
The charts that follow present the difference in average unstandardized residual values for men and women, broken down by school/division, over the past seven years.

- Blue bars reflect women receiving higher salaries than predicted when compared to men; Orange bars reflect men receiving higher salaries than predicted when compared to women.
- As trends approach 0, they represent less disparate salaries between men and women.
- Trends that remain consistent or spread further reflect continued or growing discrepancies between salaries of men and women.

# Longitudinal Analysis of Average Unstandardized Residuals

Longitudinal Analysis of Unstandardized Residual Values	College of Arts and Sciences: Humanities and Social Sciences	College of Arts and Sciences: Mathematics and Natural Sciences	Schools of Engineering and Applied Social Sciences	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + I..
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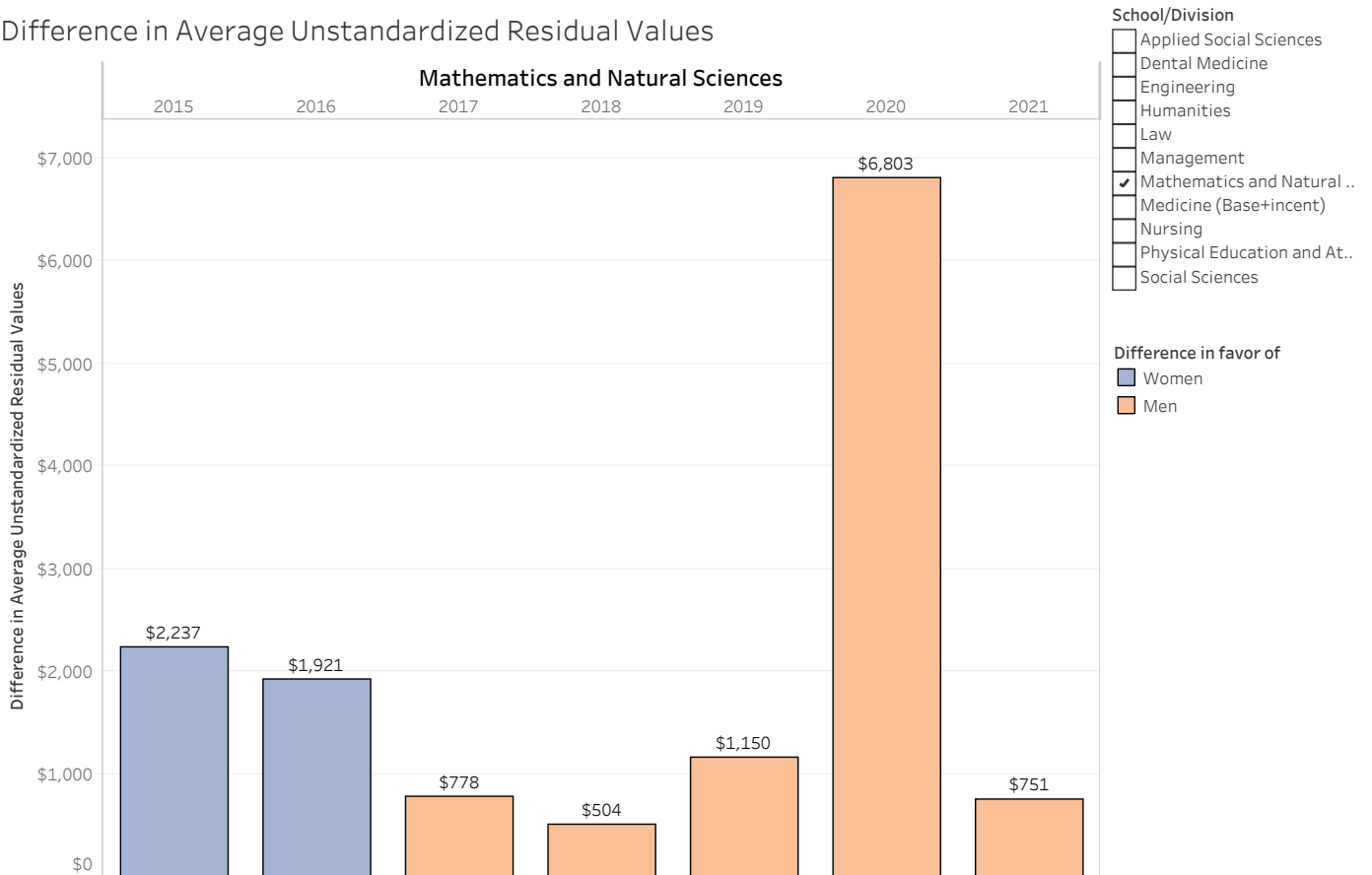
Difference in Average Unstandardized Residual Values



# Longitudinal Analysis of Average Unstandardized Residuals

Longitudinal Analysis of Unstandardized Residual Values	College of Arts and Sciences: Humanities and Social Sciences	<b>College of Arts and Sciences: Mathematics and Natural Sciences</b>	Schools of Engineering and Applied Social Sciences	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + I..
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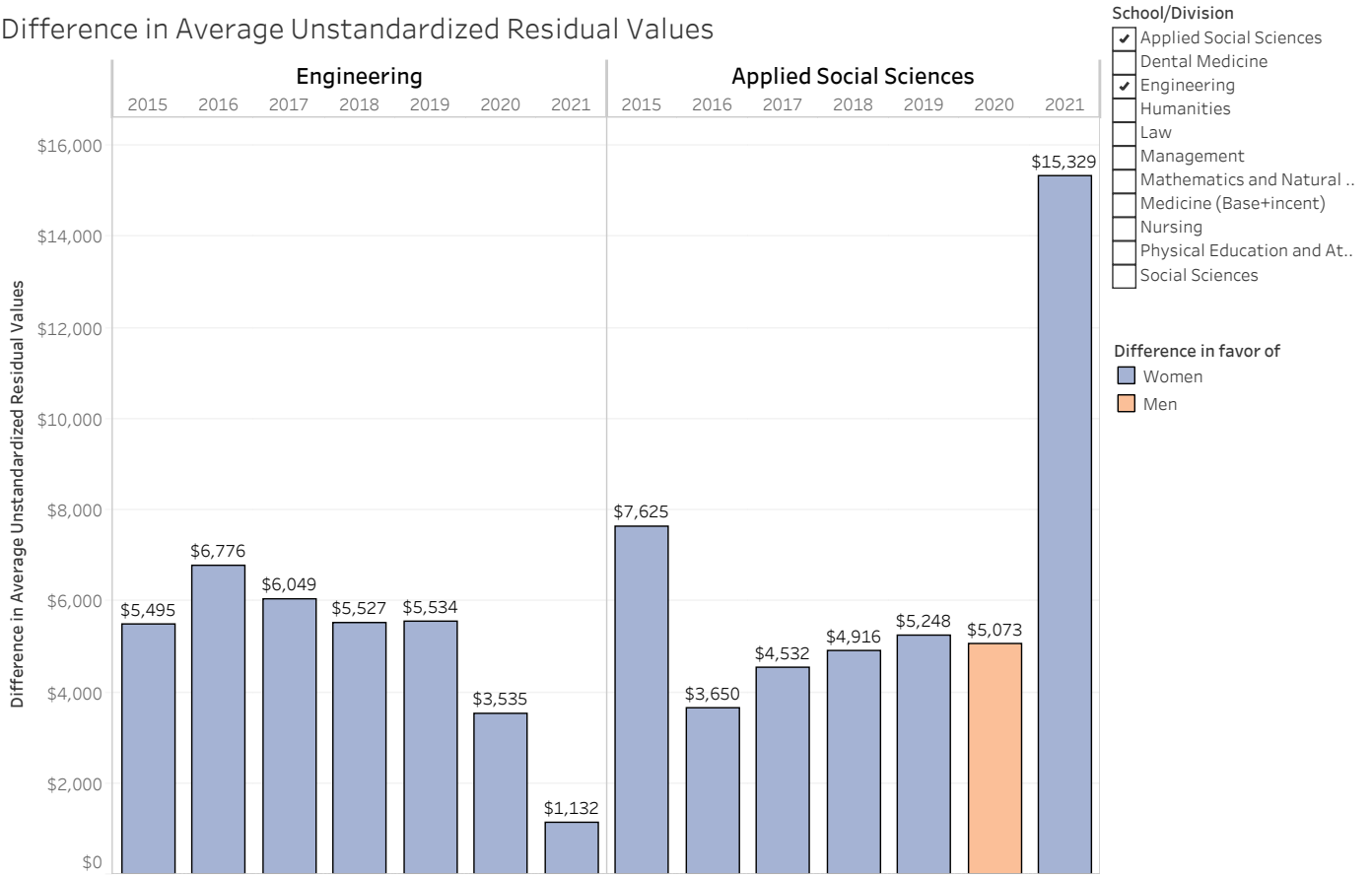
Difference in Average Unstandardized Residual Values



# Longitudinal Analysis of Average Unstandardized Residuals

Longitudinal Analysis of Unstandardized Residual Values	College of Arts and Sciences: Humanities and Social Sciences	College of Arts and Sciences: Mathematics and Natural Sciences	<b>Schools of Engineering and Applied Social Sciences</b>	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)
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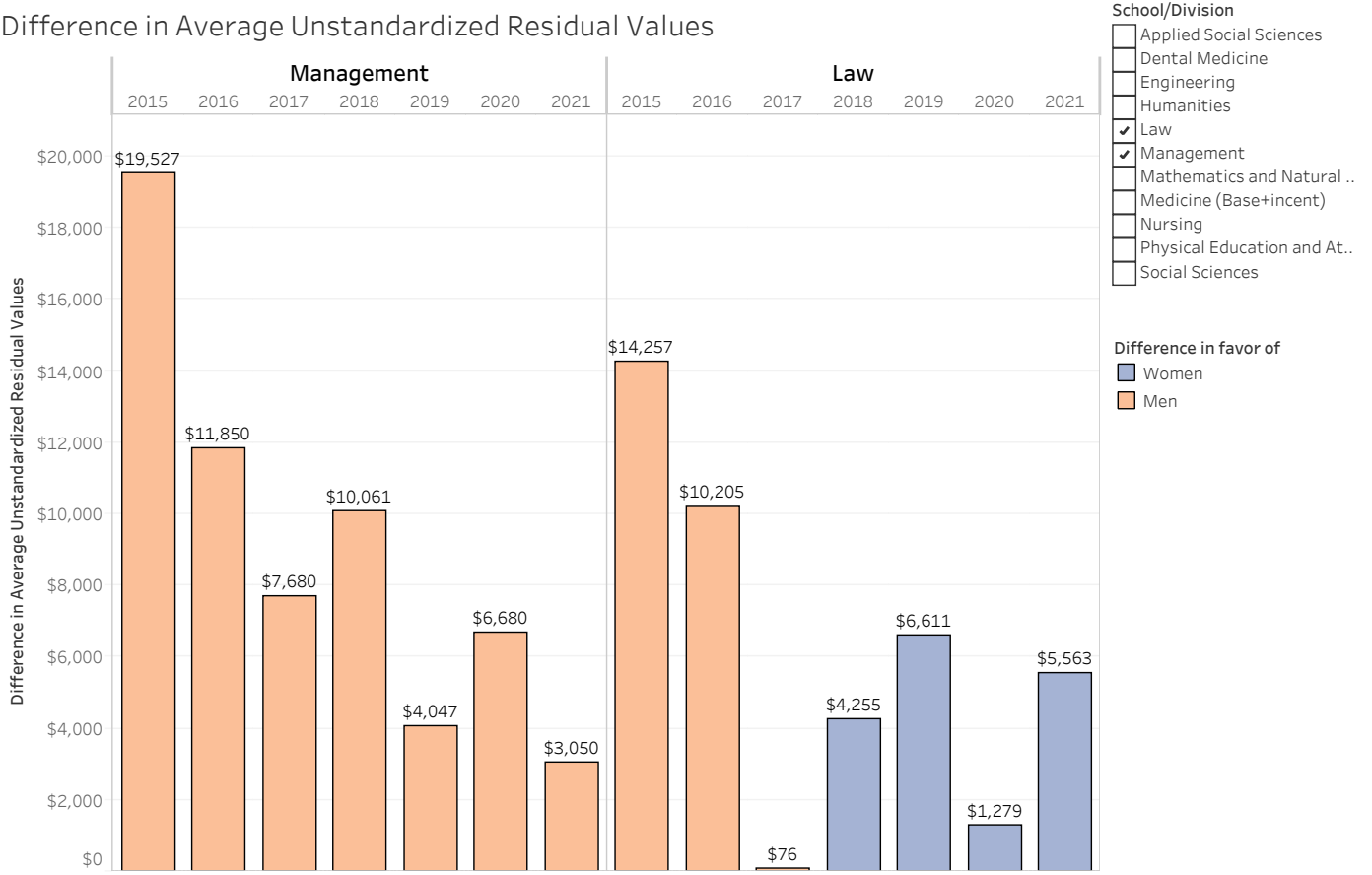
Difference in Average Unstandardized Residual Values



# Longitudinal Analysis of Average Unstandardized Residuals

College of Arts and Sciences: Humanities and Social Sciences	College of Arts and Sciences: Mathematics and Natural Sciences	Schools of Engineering and Applied Social Sciences	<b>Schools of Management and Law</b>	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics
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Difference in Average Unstandardized Residual Values

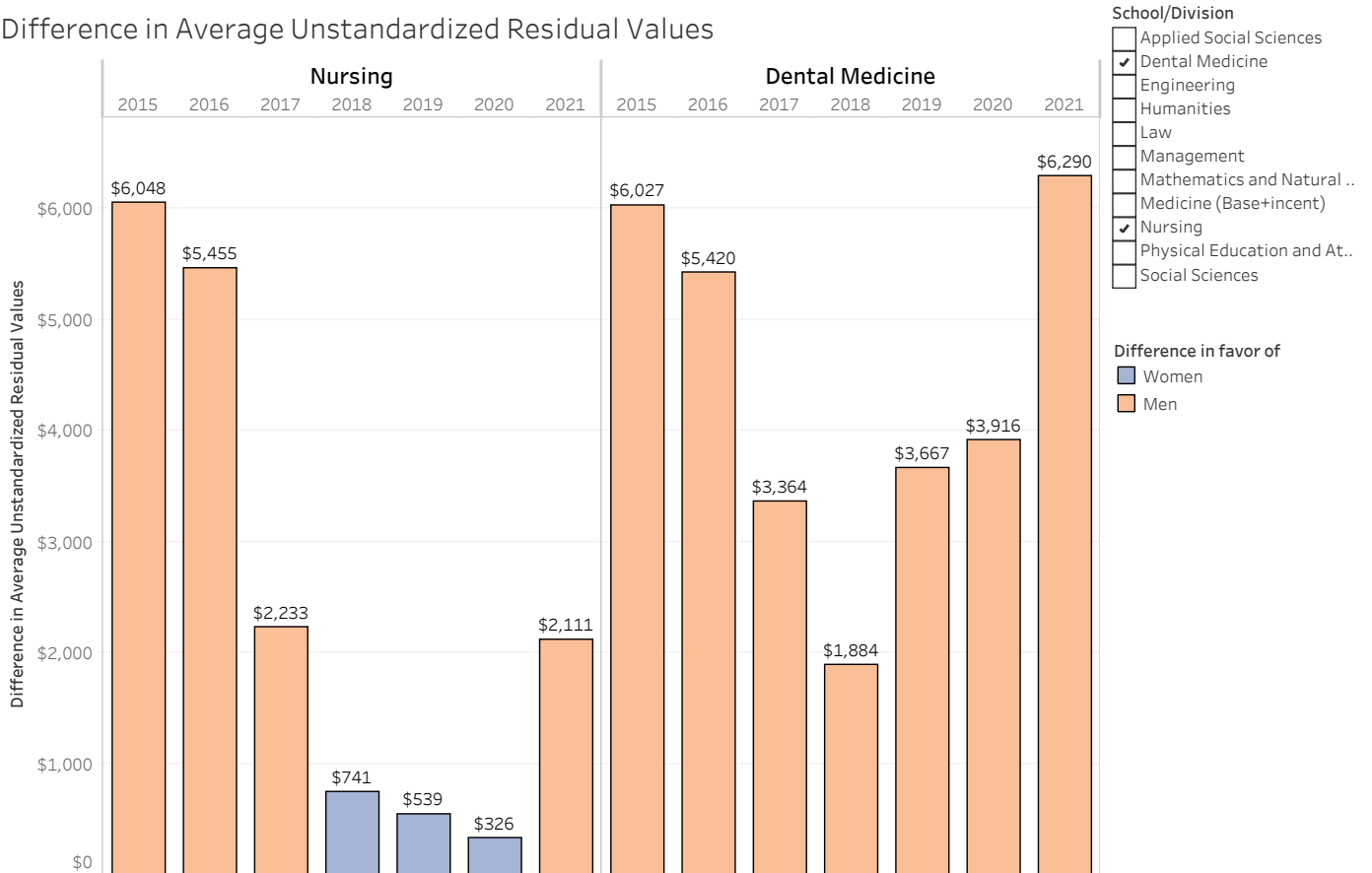




# Longitudinal Analysis of Average Unstandardized Residuals

College of Arts and Sciences: Mathematics and Natural Sciences	Schools of Engineering and Applied Social Sciences	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics	Results
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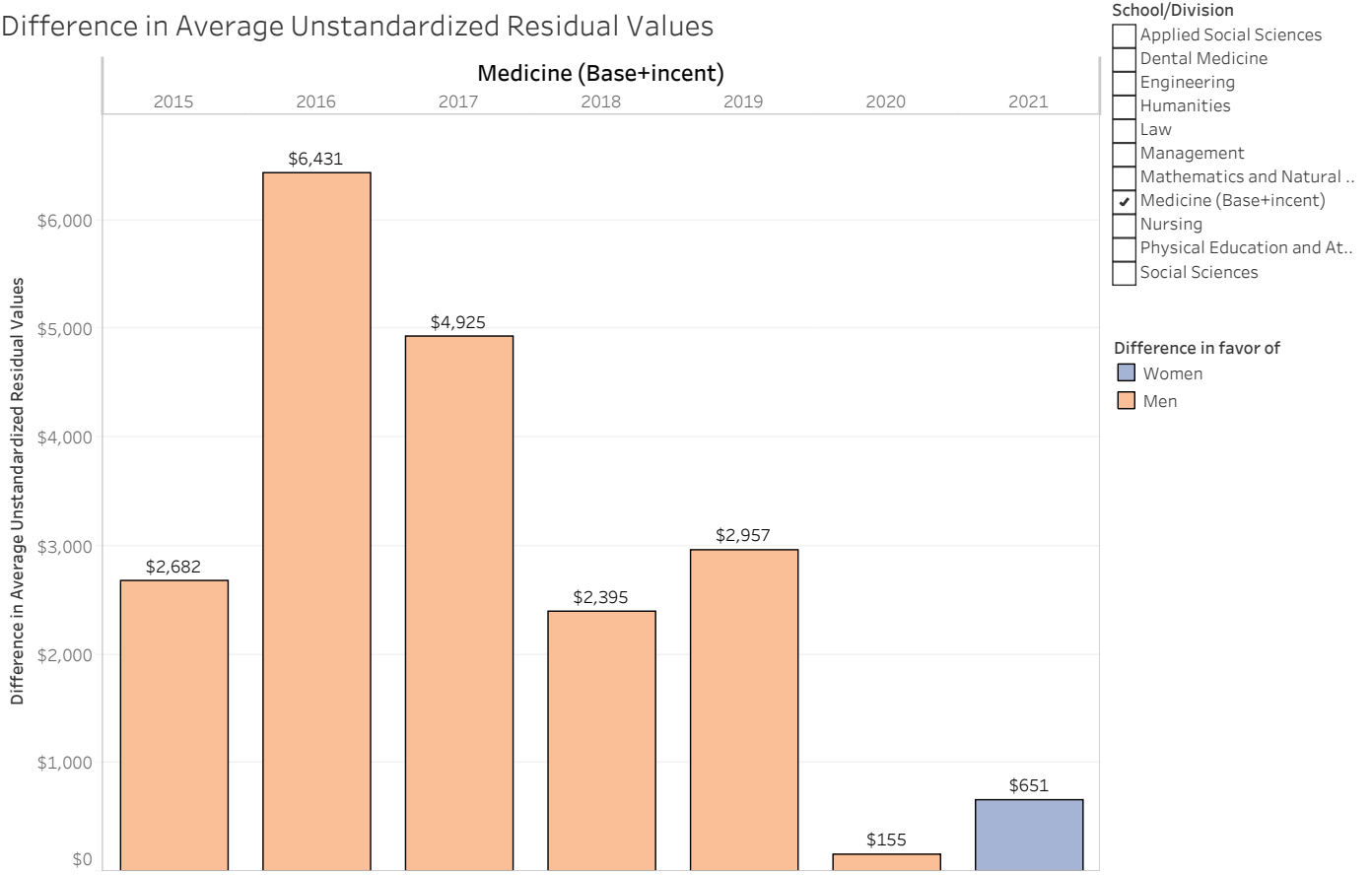
Difference in Average Unstandardized Residual Values



# Longitudinal Analysis of Average Unstandardized Residuals

Schools of Engineering and Applied Social Sciences	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics	Results	Recommendations
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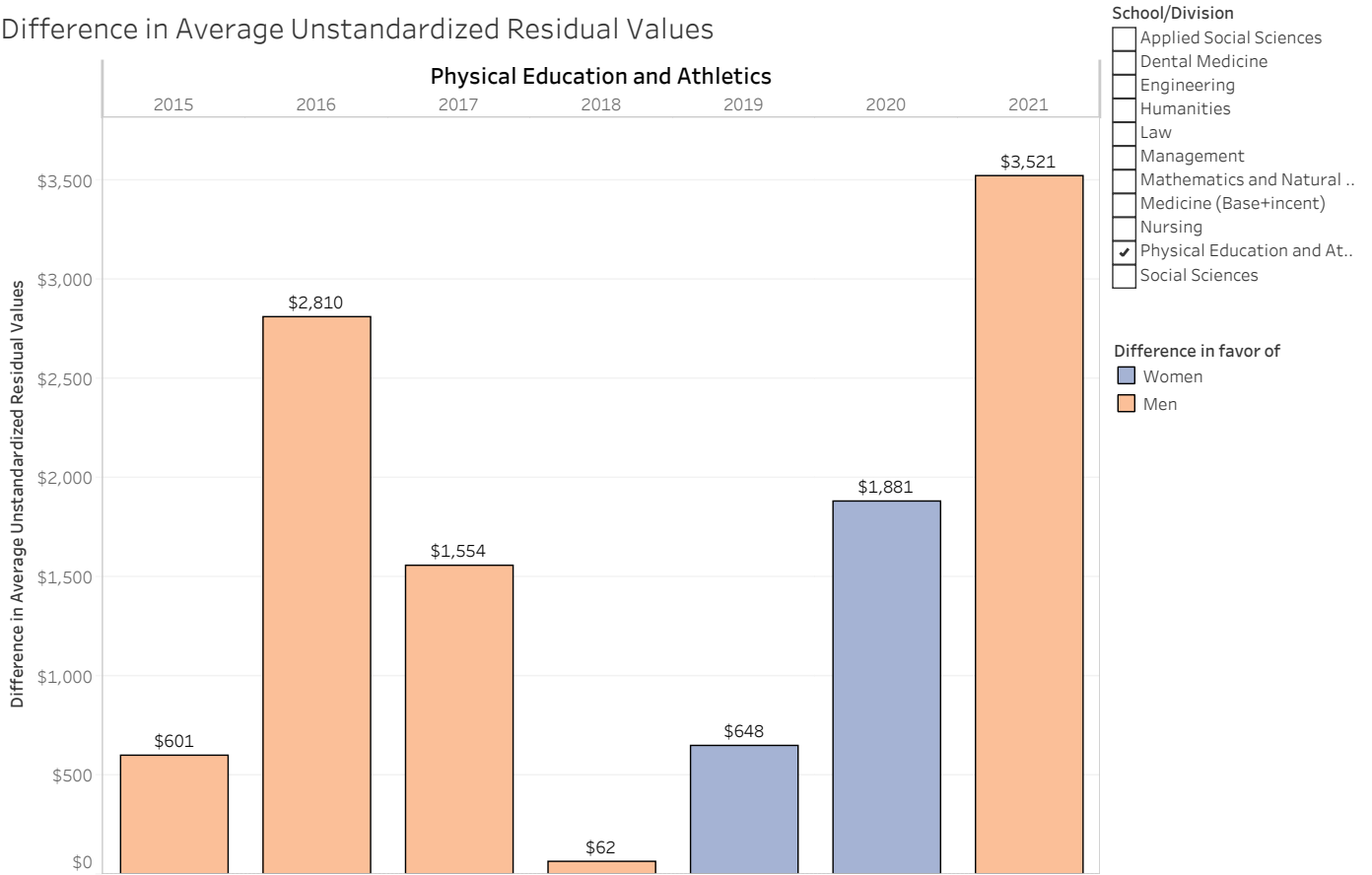
Difference in Average Unstandardized Residual Values



# Longitudinal Analysis of Average Unstandardized Residuals

Schools of Engineering and A..	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics	Results	Recommendations
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Difference in Average Unstandardized Residual Values



## Longitudinal Analysis of Average Unstandardized Residuals

Schools of Engineering and A..	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics	Results	Recommendations
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### Results

- The largest discrepancies in favor of men reside in the School of Dental Medicine and PE/Athletics.
- The largest discrepancies in favor of women occur in Social Work, Social Science and Law.
- Differences in salaries between men and women are smallest in Medicine, Math and Natural Sciences and Engineering.
- For many Schools and divisions, the difference in average unstandardized residual values has trended in the downward direction over the past few years, suggesting less discrepancy in salaries due to sex.

# Longitudinal Analysis of Average Unstandardized Residuals

Schools of Engineering and A..	Schools of Management and Law	Schools of Nursing and Dental Medicine	School of Medicine: Basic Sciences (Base + Incentive)	University General: Physical Education and Athletics	Results	Recommendations
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## Recommendations

- When sufficient numbers allow, data on race/ethnicity should be included to allow the University and respective schools to explore issues related to inclusion, diversity, and equity.
- Metrics related to productivity could be included to help further explain potential salary discrepancies; however, this should be undertaken with sensitivity to differences across gender, subject area, and other considerations. Exploring productivity may only provide limited information and should be subject to discussion among faculty if found to be a useful predictor in such analyses.
- The data reflect continued movement toward salary alignment between men and women; however, discrepancies in several areas still exist and should be the focus of advancement opportunities.