

**Faculty Salary Regression:
Tenured and Tenure-Track Faculty,
Tufts Arts, Sciences, and Engineering: Academic Year 2025/2026
and
Tufts Arts and Sciences: Academic Years 2016/2017-2025/2026**

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For more than two decades, the Tufts AAUP chapter and the A&S Administration have worked together to produce a yearly regression analysis of faculty salaries. This report includes the results from the statistical analysis of tenure-track faculty salaries in AS&E for the 2025/2026 academic year (AY). It also includes a similar analysis for A&S for the 2016/2017-2025/2026 academic years as we were only provided with the previous years of data back to 2016/2017 by the A&S administration. We thank the AS&E Administrations for providing the data.

This report first provides descriptive statistics for salaries and then uses regression analysis to estimate two models of faculty salary. Regression analysis is a statistical technique that determines how much of the variation among individual salaries can be explained by a select set of characteristics. The resulting equation shows the average difference in salary that comes from having different individual characteristics, and it can be used to generate predictions of the average/expected salary for each faculty member. The characteristics selected either go back to the original purposes of the regression, testing for evidence of salary differentials based on gender or race, or other factors that might legitimately be expected to influence salary determination. The Administration has long agreed to our running two regressions, one that ignores the field of scholarship and another that takes field into account.¹ Inclusion of *field* should not be taken to imply that they represent reasonable criteria for salary determination, although admittedly they were added to help “explain” the variation in salary due to gender, which declines when we control for *field*.

It is important to note that this regression cannot be used to evaluate factors that contribute to salary decisions or to uncover all the factors that affect salary determination. It simply employs a set of variables that were mutually agreed upon with the Administration to determine if gender or race is correlated with salary conditional on the other variables included in the regression. Thus, while the regression results have been used by individuals who fall below the mean of their comparison group to argue for salary adjustments, it is an imperfect tool to this end and must be used with care.

¹ *Field* includes the four binary indicators: *Engineering*, *Humanities*, *Natural Science*, and *Social Science*

We carry out this salary analysis first for AS&E for AY2025/2026 and then for A&S for AY2016/17 to AY2025/2026.

1. AS&E for AY2025/2026

The data include information for 381 tenure-track faculty for AY2025/2026. This includes 173 Full-Professors, 116 Associate Professors, and 92 Assistant Professors. Table 1 presents the variable definitions, and summary statistics are provided in Table 2. Information on different percentiles of the salary distribution by rank is given in Table 3.

Two salary models are estimated: Model I is without field variables and Model II is with field variables (*Engineering, Humanities, Natural Science, and Social Science*).

Model I:

$$\text{Salary}_i = \alpha_0 + \alpha_1 \text{Male}_i + \alpha_2 \text{White}_i + \alpha_3 \text{Years in Rank}_i + \alpha_4 \text{Full Professor}_i \\ + \alpha_5 \text{Associate Professor}_i + \alpha_6 \text{Chair Ever}_i + \alpha_7 \text{Lateral Hire}_i + u_{1i}$$

Model II:

$$\text{Salary}_i = \beta_0 + \beta_1 \text{Male}_i + \beta_2 \text{White}_i + \beta_3 \text{Years in Rank}_i + \beta_4 \text{Full Professor}_i \\ + \beta_5 \text{Associate Professor}_i + \beta_6 \text{Chair Ever}_i + \beta_7 \text{Lateral Hire}_i \\ + \beta_8 \text{Engineering}_i + \beta_9 \text{Natural Science}_i + \beta_{10} \text{Social Science}_i + u_{2i}$$

where Salary_i is the salary for tenure-track faculty member i , the right-hand-side variables are characteristics of this faculty member, the α 's and β 's are parameters to be estimated and u_{1i} and u_{2i} combine unobservable factors that affect salary. The parameters represent the average impact on *Salary* from a change in the observable variables, all else equal. For example, α_3 is the average change in salary when *Years in Rank* is increased by one year, all else equal. Also, β_8 represents the average difference in *Salary* between a faculty member in *Engineering* and a faculty member in *Humanities*, all else equal. Here “all else equal” means that all other observable characteristics in the regression are the same for these two faculty members.

These two models are also estimated using the natural log of *Salary* as the dependent variable. The parameters then represent the percentage impact on salary from a change in the observable variables. For example, α_3 is the percent change in salary when *Years in Ranks* is increased by one year, on average and all else equal. Also, β_8 represents the

percent difference in salary between a faculty member in *Engineering* and a faculty member in the *Humanities*, on average and all else equal.²

The results from estimating Models I and II are given in Table 4. Looking at column (1), we see that a male professor is paid \$4,123 more than a female professor, on average and all else equal. But we cannot reject the null hypothesis that there is no difference at the 5% significance level. Furthermore, this difference falls to \$1,466 when the three field variables are included (column (3)).

Again, looking at column (1) of Table 4, we find that a white professor earns \$1,197 less than a non-white professor, on average and all else equal. Again, we cannot reject the null hypothesis that there is no difference at the 5% significance level. This difference falls (in magnitude) to -\$103 when the three area variables are included (column (3)). So overall, we find little evidence of significant salary differentials by gender and race.

On average, and all else equal, compared to faculty in *Humanities*, those in *Engineering* earn \$34,447 (23%) more, those in *Social Sciences* earn \$18,839 (12%) more, and those in *Natural Sciences* earn \$6,039 (5%) more (columns (3) and (4) of Table 4).

We now have information on individual faculty productivity. This information comes from the Academic Analytics Scholarly Research Index (SRI).

“The FSPI analysis creates, by academic field of study, a statistical score and a ranking based on the cumulative scoring of a program's faculty using these quantitative measures compared against national standards within the particular discipline. Individual program scores can then be combined to demonstrate the quality of the scholarly work of the entire university.” Wikipedia
https://en.wikipedia.org/wiki/Faculty_Scholarly_Productivity_Index

The summary statistics for the SRI index, *productivity*, are included in the last row in Table 2. We see that the mean value is 0.38, the standard deviation is 1.00, the minimum value is -1.76, and the maximum value is 3.90. The values of *productivity* are only comparable within each discipline as they are indexed to make them comparable across all disciplines within AS&E. Note that the value for *productivity* is missing for 21 faculty members. We include *productivity* in Model II. The regression results are listed in column (5) of Table 4. This regression also includes an indicator for the 21 faculty members who are missing the value of *productivity*. We find that a one standard deviation increase in *productivity* is associated with a \$8,884 increase in salary, on average, all else equal. This is a 5.9% increase relative to the mean salary (\$151.73 thousand).

² To be precise, $100 * (\exp(\beta_8) - 1)$ is the percent difference in salary between a faculty member in *Engineering* and a faculty member in the *Humanities*, on average and all else equal.

Table 1: Definitions of Variables

Variable	Definition
Salary	individual annual faculty salary
Male	1 if male, 0 if female
White	1 if white, 0 if nonwhite
Years in Rank	number of years in rank
Full Professor	1 if full professor, 0 otherwise
Associate Professor	1 if associate professor, 0 otherwise
Assistant Professor	1 if assistant professor, 0 otherwise
Chair Ever	1 if ever department chair, 0 otherwise
Lateral Hire	1 if lateral entry (came in as an associate or full professor), 0 otherwise
Engineering	1 if individual is in the School of Engineering, 0 otherwise
Natural Science	1 if individual is in a department in the natural sciences division, 0 otherwise
Social Science	1 if individual is in a department in the social sciences division, 0 otherwise
Humanities	1 if individual is in a department in the humanities division, 0 otherwise
Productivity	Academic Analytics Scholarly Research Index “A methodology to provide comparative context for faculty or unit research activity compared to taxonomy peers.”

Table 2: Summary Statistics for AS&E for AY2025/2026

Variable	N	Mean	SD	Min	Max
Salary in \$1,000s	381	151.730	45.800	93.220	371.760
Salary: full prof	173	184.350	44.390	116.980	371.760
Salary: associate	116	130.790	24.250	100.110	243.230
Salary: assistant	92	116.800	21.800	93.220	165.160
Salary: engineering	96	173.380	46.530	120.350	371.760
Salary: social science	108	150.670	49.480	94.820	300.610
Salary: natural science	79	141.860	35.570	98.880	266.240
Salary: arts/humanities	98	139.650	41.070	93.220	275.110
Male	381	0.600	0.490	0	1
White	381	0.660	0.470	0	1
Years in Rank	381	8.850	9.470	0	42
Full prof	381	0.450	0.500	0	1
Associate prof	381	0.300	0.460	0	1
Assistant prof	381	0.240	0.430	0	1
Chair ever*	381	0.240	0.430	0	1
Lateral hire	381	0.130	0.340	0	1
Engineering	381	0.250	0.430	0	1
Social science	381	0.210	0.410	0	1
Natural science	381	0.280	0.450	0	1
Arts/humanities	381	0.260	0.440	0	1
Productivity	360	0.380	1.000	-1.760	3.900

Table 3: Annual Salary Distributions by Rank and Field for AY 2025-26

Rank	Number	Percentiles				
		10	25	50	75	90
All	381	\$104,151	\$ 114,563	\$ 143,931	\$ 173,825	\$ 212,255
Full	173	\$138,548	\$ 156,347	\$ 173,808	\$ 203,881	\$ 242,532
Associate	116	\$106,489	\$ 112,909	\$ 123,889	\$ 142,849	\$ 165,781
Assistant	92	97,351	\$ 100,394	\$ 107,000	\$ 126,732	\$ 158,001
Engineering	96	\$130,106	\$ 143,870	\$ 160,120	\$ 185,086	\$ 227,408
Humanities	98	\$98,147	\$ 106,667	\$ 130,171	\$ 162,850	\$ 200,979
Natural Science	79	\$105,815	\$ 112,036	\$ 132,079	\$ 164,120	\$ 188,172
Social Science	108	\$103,237	\$ 110,044	\$ 141,384	\$ 181,016	\$ 216,197

Table 4: Salary Regression Results for AS&E: AY 2025/2026

Variable	Dependent Variable				
	Without Area Variables (Model I)		With Area Variables (Model II)		
	Salary (1)	Ln(Salary) (2)	Salary (3)	Ln(Salary) (4)	Salary* (5)
Male	4.123 (3.179)	0.023 (0.019)	1.466 (3.001)	0.002 (0.018)	1.253 (2.973)
White	-1.197 (3.392)	-0.010 (0.020)	-0.103 (3.150)	-0.003 (0.018)	-0.743 (3.101)
Full prof	54.692 (4.906)**	0.375 (0.029)**	51.360 (4.473)**	0.353 (0.026)**	43.618 (4.625)**
Associate prof	8.082 (3.614)*	0.081 (0.026)**	8.063 (3.214)*	0.083 (0.022)**	4.105 (3.438)
Years in Rank	0.575 (0.195)**	0.003 (0.001)**	0.736 (0.188)**	0.004 (0.001)**	1.046 (0.200)**
Chair ever	2.515 (5.029)	0.016 (0.026)	8.408 (4.738)	0.057 (0.024)*	8.102 (4.578)
Lateral hire	34.656 (6.253)**	0.193 (0.028)**	32.394 (6.370)**	0.179 (0.029)**	29.714 (6.471)**
Engineering			34.447 (4.314)**	0.234 (0.023)**	37.368 (4.364)**
Natural Science			6.039 (3.475)	0.052 (0.020)*	7.578 (3.349)*
Social Science			18.839 (4.304)**	0.115 (0.025)**	18.939 (4.369)**
Productivity					8.884 (2.110)**
_cons	112.600 (3.190)**	4.723 (0.022)**	97.182 (3.725)**	4.621 (0.022)**	95.700 (3.823)**
R ²	0.509	0.565	0.588	0.659	0.616
N	381	381	381	381	381

Robust standard errors in parentheses, * $p < 0.05$; ** $p < 0.01$.

* - This regression also includes an indicator for the 21 faculty members who are missing the value of *productivity*.

2. Additional Information from the Salary Regressions

The **R-square (R^2)** gives the proportion of the variation in *Salary* that is explained by the regression equation. An R^2 of 0.588 (column (3) of Table 4) shows that 58.8% of the variation in *Salary* can be explained by the variables in the model. When *productivity* is included the R^2 increases to 0.616. Thus 38.4% of the variation in *Salary* is explained by other variables not included in the model. Note that, when controlling for the other variables already in the model, *productivity* only increases the variation in *Salary* that can be explained by the regression by 2.8%.

The **Regression Standard Error** can be used to help determine whether an individual's salary differs from their predicted salary by a statistically significant amount. The regression standard errors for each separate rank are generated by running the regression that includes *field* (Model 2) with observations restricted to individual in that rank. If an individual's salary differs from his or her predicted salary by more than 1.5 to 2.0 standard errors, the difference can be considered statistically significant. Such a difference may represent a salary inequity if it cannot be explained by productivity or market differences.

We now estimate Model II separately for each rank. The results are presented in columns (1) - (3) in Table 5. The results for the full sample are also included in column (4) of Table 5 (also in column (3) of Table 4).

	Regression Standard Error
	AY 2025/2026
Full Professor	\$37,998
Associate Professor	\$22,247
Assistant Professor	\$15,230

Generating predicted salaries: A predicted salary for an individual can be calculated by selecting the appropriate value for each characteristic, multiplying it by the corresponding parameter estimate, and computing the sum. For a male, white, associate professor who is in his 5th year in rank and is in the natural sciences, the prediction for AY2025/2026 is: (see Table 5, column (4) for these estimated values)

$$\begin{aligned} \text{Salary} &= 97.182 + 1.466 - 0.103 + (5 \times 0.736) + 6.309 + 8.063 \\ &= \$116.325 \text{ thousand} \end{aligned}$$

For a non-white, female, assistant professor in her first year at Tufts in the arts/humanities, the prediction is:

$$\text{Salary} = 97.182 + (1 \times 0.736) = \$97.918 \text{ thousand}$$

Table 5: Salary Regression Results for AS&E by Rank: AY 2025/2026

Variable	Dependent Variable: Salary			
	Full Prof (1)	Assoc Prof (2)	Assistant Prof (3)	All (4)
Male	1.796 (5.506)	-0.261 (4.851)	-0.910 (3.691)	1.466 (3.001)
White	0.877 (6.484)	-3.299 (4.714)	3.951 (3.512)	-0.103 (3.150)
Years in Rank	1.329 (0.326)**	0.117 (0.174)	0.637 (0.821)	0.736 (0.188)**
Chair ever	7.536 (5.640)	6.982 (7.143)		8.408 (4.738)
Lateral hire	36.834 (8.200)**	18.184 (6.576)**	-9.063 (11.494)	32.394 (6.370)**
Engineering	38.368 (8.536)**	27.577 (4.463)**	44.058 (4.813)**	34.447 (4.314)**
Natural Science	5.647 (6.779)	6.023 (3.949)	7.564 (3.876)	6.039 (3.475)
Social Science	27.822 (8.289)**	12.061 (6.361)	12.434 (4.880)*	18.839 (4.304)**
Full prof				51.360 (4.473)**
Associate prof				8.063 (3.214)*
_cons	136.815 (8.858)**	119.119 (6.951)**	97.220 (3.738)**	97.182 (3.725)**
R ²	0.301	0.217	0.550	0.588
Regression Std Err	37.998	22.247	15.230	29.807
N	173	116	92	38

Robust standard errors in parentheses, * $p < 0.05$; ** $p < 0.01$.

3. A&S for AY2016/2017 to 2025/2026

The sample size is 2,853 observations and it includes information for tenure-track faculty for AY2016/2017 to AY2025/2026. Table 6 presents the summary statistics. Salary is put in real terms (in \$2025) using the Boston-Cambridge-Newton, MA-NH Area CPI. The mean real salary in the sample is \$149.52 thousand. Note one change from what was presented for AY2025-2026, is that we include *Years at Tufts* rather than *Years in Rank* as the latter is only available since AY2023-2024.

Two salary models are estimated: Model III excludes field variables and Model IV includes field variables.

Model III:

$$\text{Salary}_{it} = \alpha_0 + \alpha_1 \text{Male}_i + \alpha_2 \text{White}_i + \alpha_3 \text{Years at Tufts}_{it} + \alpha_4 \text{Full Professor}_{it} \\ + \alpha_5 \text{Associate Professor}_{it} + \alpha_6 \text{Chair Ever}_{it} + \alpha_7 \text{Lateral Hire}_{it} + \alpha_8 \text{Year}_t + u_{lit}$$

Model IV:

$$\text{Salary}_{it} = \beta_0 + \beta_1 \text{Male}_i + \beta_2 \text{White}_i + \beta_3 \text{Years at Tufts}_{it} + \beta_4 \text{Full Professor}_{it} \\ + \beta_5 \text{Associate Professor}_{it} + \beta_6 \text{Chair Ever}_{it} + \beta_7 \text{Lateral Hire}_{it} \\ + \beta_8 \text{Engineering}_i + \beta_9 \text{Natural Science}_i + \beta_{10} \text{Social Science}_i + \beta_{11} \text{Year}_t + u_{2it}$$

where Salary_{it} is the salary for tenure-track faculty member i in year t and Year_t is and indicator of the academic year (2025 is for AY2025/2026). Note that the first year, 2016 is left out so the coefficients for each of the remaining years are the difference in *Salary* between that year and 2016, on average and all else equal. Models III and IV are also estimated with the natural log of *Salary* as the dependent variable. The results are presented in Table 7. As with the AY2025-2026 data, there is little evidence of salary differences by gender and race. Generally, the parameter estimates are similar to those in Table 4 for the AY2025-2026 sample.

What is new here is the addition of the year variables for 2017-2025. What we see is that starting in AY2020, on average, and all else equal, salaries have been significantly lower than they were in 2016. In AY2025-2026, average salaries were \$13,028 (7.5%) lower compared to AY2016-2017, all else equal (columns (3) and (4) of Table 7).

**Table 6: Summary Statistics
for A&S for AY2016/2017-2025/2026**

Variable	N	Mean	SD	Min	Max
Salary in \$1,000s	2,853	128.890	41.030	47.570	300.610
Salary: real*	2,853	149.520	46.600	59.830	344.720
Salary: full prof	1,337	182.780	44.300	59.830	344.720
Salary: associate	908	127.870	22.900	75.380	313.800
Salary: assistant	608	108.750	17.260	92.520	184.800
Salary: social science	1,047	155.190	52.200	84.260	323.600
Salary: natural science	797	149.690	41.610	67.820	317.510
Salary: arts/humanities	1,009	143.520	43.360	59.830	344.720
Male	2,853	0.580	0.490	0	1
White	2,853	0.710	0.450	0	1
Years at Tufts	1,131	9.410	9.730	0	47
Full prof	2,853	17.310	13.620	0	62
Associate prof	2,853	0.470	0.500	0	1
Assistant prof	2,853	0.320	0.470	0	1
Chair ever	2,853	0.210	0.410	0	1
Lateral hire	2,853	0.220	0.410	0	1
Natural science	2,853	0.080	0.270	0	1
Social science	2,853	0.280	0.450	0	1
Arts/humanities	2,853	0.370	0.480	0	1

* - Salary is put in real terms using the Boston-Cambridge-Newton, MA-NH Area CPI. CPI is calculated as the mean of the (2nd half CPI + 1st half CPI)/2 in correspondence with the AY. CPI=100 for AY 2025/2026

Table 7: Real Salary Regression Results for A&S for AY2016/2017 – 2025/2026

	Dependent Variable			
	Without Area Variables (Model III)		With Area Variables (Model IV)	
	Real Salary (1)	Ln(Real Salary) (2)	Real Salary (3)	Ln(Real Salary) (4)
Male	0.049 (1.151)	-0.002 (0.007)	1.281 (1.151)	0.004 (0.007)
White	-0.960 (1.257)	-0.006 (0.007)	-1.378 (1.237)	-0.010 (0.007)
Full prof	54.535 (2.178)**	0.390 (0.013)**	54.489 (2.133)**	0.389 (0.012)**
Associate prof	11.818 (1.422)**	0.116 (0.009)**	13.206 (1.397)**	0.124 (0.009)**
Years at Tufts	0.460 (0.066)**	0.003 (0.000)**	0.529 (0.064)**	0.003 (0.000)**
Chair ever	5.410 (1.892)**	0.036 (0.010)**	6.263 (1.848)**	0.042 (0.010)**
Lateral hire	49.348 (3.338)**	0.261 (0.015)**	50.156 (3.168)**	0.268 (0.014)**
2017	-2.524 (2.652)	-0.014 (0.014)	-2.607 (2.590)	-0.015 (0.014)
2018	-6.493 (2.781)*	-0.042 (0.016)**	-6.659 (2.707)*	-0.043 (0.015)**
2019	-2.902 (2.698)	-0.014 (0.014)	-3.253 (2.623)	-0.016 (0.014)
2020	-6.240 (2.658)*	-0.036 (0.014)*	-6.704 (2.578)**	-0.039 (0.014)**
2021	-10.143 (2.667)**	-0.064 (0.015)**	-10.669 (2.588)**	-0.067 (0.014)**
2022	-12.184 (2.691)**	-0.078 (0.015)**	-12.666 (2.626)**	-0.081 (0.014)**
2023	-11.407 (2.667)**	-0.072 (0.015)**	-12.193 (2.612)**	-0.077 (0.014)**
2024	-13.374 (2.566)**	-0.082 (0.014)**	-14.074 (2.500)**	-0.086 (0.014)**
2025	-12.470 (2.555)**	-0.074 (0.014)**	-13.028 (2.482)**	-0.078 (0.014)**
Natural Science			6.417 (1.358)**	0.046 (0.007)**
Social Science			18.096 (1.439)**	0.110 (0.008)**
_cons	115.524 (2.101)**	4.722 (0.012)**	105.223 (2.170)**	4.658 (0.012)**
R ²	0.548	0.612	0.575	0.639
N	2,853	2,853	2,853	2,853

Robust standard errors in parentheses, * $p < 0.05$; ** $p < 0.01$. Left out year is 2016.

Salary is put in real terms using the Boston-Cambridge-Newton, MA-NH Area CPI. CPI is calculated as the mean of the (2nd half CPI + 1st half CPI)/2 in correspondence with the AY. CPI=100 for AY 2025/2026.