

**Senate Committee on the Economic Status of The Faculty**  
**Fiscal Year 2016**  
**July 1, 2015 through June 30, 2016**

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## I. Introduction

The Senate Committee on the Economic Status of the Faculty (SCESF) is charged by the “Rules of the Faculty Senate” to:

- Gather and organize data on faculty salaries and benefits;
- Issue an annual report on the economic status of the faculty; and
- Represent the faculty in the determination of University policy on salary issues.

The focus of this report is the current economic status of the faculty, based on salary and benefits data provided to the committee by the Provost’s Office, prepared by the Offices of Institutional Research & Analysis (IR&A) and Human Resources. Unless otherwise specifically stated, faculty salary information discussed in this report refers to the aggregated 9-month or “academic year” base salary of faculty members whether salaries are paid from General Operating Funds and/or from Designated Funds.<sup>1</sup> Deans and faculty on phased retirement were excluded. The data provided to SCESF preserve anonymity of individuals. Additional publicly available data on annual merit increases for senior administrators were obtained from Form 990 reporting (see <https://projects.propublica.org/nonprofits/organizations/231352685>). Benefits data were provided by Human Resources; additional data were extracted from publicly available websites.

SCESF’s mission is to provide an analysis of the economic status of standing faculty (i.e., tenure-line and clinician educator tracks) at the University of Pennsylvania. This year, SCESF was provided Fiscal Year 2016 (FY2016) data for 1,227 members of the tenure-line faculty (719 Professors, 247 Associate Professors, and 261 Assistant Professors), less than half of the 2,566 standing faculty.<sup>2</sup> For the Perelman School of Medicine (PSOM), SCESF was provided data for 151 tenure-line faculty in basic science departments. Data on salaries of nearly 1,000 clinician educators in the standing faculty from Medicine, Dental Medicine, Veterinary Medicine, Nursing, and Social Policy and Practice were not provided to the committee, nor were data provided for the 240 tenure-line PSOM faculty in clinical departments, 86 tenure-line PSOM faculty based at the Children’s Hospital of Philadelphia or 35 PSOM tenure-line faculty based at the Veterans Administration. These 240 Penn-based tenure-line standing faculty in clinical departments and all of the nearly 1,000 clinician educator standing faculty members have historically been excluded from the confidential data provided to SCESF by the Provost’s Office, but represent nearly 50% of the standing faculty of the University. SCESF requested that the FY2016 adjusted academic base salary data include all tenure line standing faculty members, including those in the 18 PSOM clinical departments (an additional 240 faculty). The data from the clinical departments was not provided, citing confidentiality concerns, and wide discipline-related salary ranges which may confuse analysis. SCESF notes that it already receives data about the entire standing faculty from all other schools at Penn, including confidential tables that provide nuanced information about discipline-related differences within schools. SCESF will continue to request missing PSOM salary data in the future in order to achieve its mission to report on the economic status of all standing faculty at Penn.

To provide a more comprehensive and detailed analysis of the faculty compensation beyond salary, this year’s report includes updated benefits data for Penn and the Ivy Plus institutions for two benefits: tuition support for dependents and institutional contributions to retirement savings plans.

Finally, the SCESF report includes a detailed summary of the processes for setting the PSOM faculty salaries.

The report focuses on four topics:

- Sources of funds for faculty salaries and how annual merit increase decisions are made.
- Merit increases compared to those at peer institutions.
- Gender disparity in faculty salaries within Penn.
- Faculty benefits for dependent tuition support and institutional contributions to retirement plans.

Section VI details SCESF’s conclusions and recommendations for Fiscal Year 2018 (FY2018).

<sup>1</sup> Academic base year salary is salary that is paid for the normal academic duties of a standing faculty member (teaching, committee service, research). At Penn, the “academic base year salary” is a faculty member’s compensation for the nine-month academic year, although it is typically paid out in 12 equal amounts in a monthly paycheck. The only exception occurs in the health care schools, which have some or all standing faculty on a 12-month or “annualized” base. All salaries reported on a 12-month basis have been adjusted to be comparable with the salaries reported on a 9-month basis. “Summer money” is paid routinely, albeit at varying levels, in some parts of the University. Such “summer money” is not included in these base year salaries.

<sup>2</sup> Retrieved December 13, 2016, from <http://www.upenn.edu/about/facts>

## II. Merit Raises for Penn Faculty in Fiscal Year 2016 (FY2016)

### A. Process for Setting and Adjusting Faculty Salaries at Penn

Faculty salaries at Penn are the product of a two-step process. First, faculty salary levels are set at the time of initial appointment by the dean making the appointment. Second, faculty salary levels are normally increased annually through a standardized process described below, based on academic merit. Promotion in rank is usually accompanied by an increase in salary. Occasionally, equity adjustments are made to increase salary. An individual’s salary may also be increased in response to an outside offer as part of a retention strategy.

Penn’s salary policy for the FY2016 period is published in *Almanac* (<http://www.upenn.edu/almanac/volumes/v61/n29/salary-guidelines.html>). As stated, the University of Pennsylvania’s merit increase program is designed to recognize and reward faculty and staff by paying market competitive salaries in a fiscally responsible manner, with merit increases based on market trends and economic conditions. The salary guidelines are intended to reward valuable contributions of faculty and staff to the University’s mission and excellence. The University does not provide cost-of-living increases.

Each year a target salary increase percentage for faculty and staff is published in *Almanac* and described as merit increase based on market trends and economic conditions. This salary increase target parameter is the result of discussions of the Budget Steering Committee (including the President, Provost, President’s Chief of Staff, Executive Vice President, Vice President for Finance and Treasurer, and Vice President for Budget and Management Analysis). Using a five-year budgeting timeline, the Budget Steering Committee proposes salary increase parameters; these parameters are distributed in October to the schools for comment, finalized in February, and published in *Almanac* in March or April. The salary pool combines faculty and staff; faculty salaries comprise one-third of the total. Salary pool projections are not tied to the inflation rate or changes in the cost of living. The salary increase parameters and the salary pool projections do not take into consideration retirements, new hires, or promotions.

The Budget Steering Committee aims to set competitive salary increases for faculty and staff, defined as targeting the middle of the upper half, or the 75th percentile, in rankings of comparable institutions. For staff, these comparisons involve local market data in the Greater Philadelphia area with guidance from Human Resources. For faculty, these comparisons should be based on the salaries of faculty at peer higher education institutions. Since 2003, the salary parameters published in *Almanac* have been identical for faculty and staff, despite differences in their relevant comparison groups. Annually, SCESF is provided benchmarking data for Penn faculty relative to the Ivy Plus institutions and 62 public and private research universities in the United States and Canada. Last year, SCESF proposed that these data, provided annually by the Provost’s Office (see updates in Tables 4 and 5, Figures 1 and 2), be used to estimate market trends for faculty, and the Administration responded that “Faculty salaries are set based upon market-driven analyses” (<http://www.upenn.edu/almanac/volumes/v62/n24/contents.html>). However, this year we report again that Penn faculty salaries for Professors lose ground with respect to our peers year after year. These historic trends underscore the need to re-examine the budgeting process for merit-based salary increases for faculty.

Funding for faculty salaries comes primarily from each school’s operating budget. No central fund exists for faculty salaries in general. Resources in each school are raised in accordance with the principles of Penn’s Responsibility Center Management (RCM) model.<sup>3</sup> Additionally, subventions are distributed to schools by the central administration. Subventions are made for a variety of reasons. For example, subvention may be made in recognition of external effects of costly actions undertaken by individual schools to the benefit of broader university-wide interests.

Using available resources, the dean of each school makes a certain amount available for faculty salaries. Particular aspects of faculty salaries for which these funds are used include sustaining existing faculty appointments, providing annual salary and promotion increases for continuing faculty members, and creating salary funding for new faculty positions. Additional resources are available for faculty retentions. In addition, all schools must provide funds to cover employee benefits. The employee benefits rate for faculty and staff is currently about 33.5% of salary.

<sup>3</sup> For a more detailed explanation of Penn’s Responsibility Center Management model, see [http://www.budget.upenn.edu/About/RCM\\_at\\_Penn/](http://www.budget.upenn.edu/About/RCM_at_Penn/)

## B. Process for Setting and Adjusting Faculty Salaries at PSOM

The Perelman School of Medicine (PSOM) uses a distinct process for setting salaries. This year SCESF met with Vice Provost for Faculty Anita Allen, Senior Vice President of the Clinical Practices of the University of Pennsylvania (CPUP) Peter Quinn, PSOM Executive Director for Faculty Affairs and Professional Development Victoria Mulhern, and PSOM Director of Decision Support and Analysis Lynn Meaney. They explained that the PSOM salary compensation structure consists of three components, designated X, Y, and Z, and excludes administrative stipends. The minimum base salary for academic rank, X, is published annually for Assistant Professors by the University in *Almanac* (\$65,000 for new Assistant Professors in FY2016) and is insensitive to time in rank, productivity, and area of scholarship or clinical expertise. The base salary supplement, Y, is based on time in rank; market demand for specialties and disciplines; and incentives that reflect recent research and clinical productivity. Component Z is available for eligible faculty and is a delayed additional compensation provided if approved department productivity incentives are reached. SCESF was informed that PSOM performs internal salary analyses, striving for internal departmental equity, gender equity, and external competitiveness, given market data provided by the American Association of Medical Colleges (AAMC). As in many schools at Penn (e.g., School of Arts and Sciences (SAS), Wharton), total base salary (X+Y) for PSOM tenure line faculty varies greatly by department and specialty. Unlike the rest of the University, total base salary for PSOM faculty is also highly volatile, may be decreased up to 20% in a year in successive years (down to X), and can increase without limit.

## C. Target Annual Salary Increases in FY 2016

As described above, an annual salary increase recommendation for continuing faculty members is made for the university by the Budget Steering Committee, followed by consultation with the deans. For FY2016, deans of the 12 schools were given a recommended salary increase parameter of 3.0% for faculty members continuing in rank; this parameter was published in *Almanac* (<http://www.upenn.edu/almanac/volumes/v61/n29/salary-guidelines.html>). The parameter has not been above 3.0% since 2006, when it was 4.0%. For the decade ending in 2006, prior to the recent economic downturn, the mean target was 3.28%.

## D. Actual Annual Salary Increases

Once the university-wide target has been set, annual salary increases for individual faculty members are determined by department chairs and deans. Any increase below 1.0% or above 5.0% requires review by the Provost's office.

Actual annual salary increases for FY2016 for faculty continuing in rank are summarized in Table 1. The median salary increase was 3.0% at all ranks. The mean and median values for full, associate, and assistant professors are broken out in Table 1. (All tables referred to in this report can be found in Section VIII.) The mean increases are higher than the medians at all ranks, suggesting the presence of high salary increases at all ranks and asymmetrical distributions. The Philadelphia Consumer Price Index (CPI) 12 month growth fell from 0.2% in July 2015, the start of FY2016, to only 0.1% in July 2016. Nearly all faculty received merit increases in excess of 0.1% (Tables 2 and 3). Faculty receiving merit increases below the CPI growth of 0.1% (essentially, no salary increase) were concentrated in Annenberg, Dental, and PSOM Basic Science departments.

Examining trends across the schools within rank (Tables 6, 7, and 8) reveals that the median salary increase in most schools meets or exceeds the university-wide salary increase target of 3.0% for faculty continuing within rank, with the exception of Design (full professors), Humanities (SAS, full, associate, and assistant professors), Natural Science (SAS, full and associate professors), Social Science (SAS, full professors), Veterinary Medicine (full professors), and Nursing (associate professors).

Table 9 reveals salary compression at the associate professor level. For five years in a row, the median salary for associate professors has been less than the mean salary for assistant professors. Compared to median salaries for assistant professors, associate professors earn only 14% more. When these data are weighted by school, associate professors earn 26% more, implying that many associate professors are concentrated in lower-paying schools. Table 10 indicates that the range of associate professor salaries is compressed relative to assistant and full professors, as revealed by the low interquartile range (IQR)-to-median ratios. Confidential supplemental data used (but not published) in Table 10 also shows variability in salaries across disciplines.

## E. Widening Gap Between Faculty and Senior Administrative Salaries

In light of concerns raised in last year's SCESF report on the widening gap between merit increases for faculty and administrators at Penn, this year's committee also reviewed publicly available data from IRS Form 990 which reports compensation for the highest paid individuals (last seven years provided at <https://projects.propublica.org/nonprofits/organizations/231352685>). We extracted all taxable compensation data (e.g., salary, incentives, retirement contributions and deferred payments) for senior administrators at Penn continuing in their position: 17 to 21 administrators each year between the 2008 and 2014 tax years. The median annual increase in salaries for administrators was 2.0% to 4.8%, including the interval when Penn tightened its belt in response to the economic downturn of 2008-2009. Previously, SCESF focused on comparing salary increases between faculty and senior administrators. However, salaries comprised 34% to 97% of the total compensation for senior administrators, with a median value of 73% to 84% during the examined years. Total compensation for an individual administrator is highly volatile (due to annual variations in incentives, bonuses, and deferred payments) varying from year to year by -32% to +117%, with median values of 0% to 8% between 2008 and 2013. In contrast, the median salary increase for faculty continuing in rank was more modest and stable, typically 3% per year. To improve the comparison between faculty and administrative salaries, next year SCESF will again request the number of standing faculty who received salary increases above 5% in each of the past three years and data regarding supplemental faculty compensation, excluding those with significant administrative responsibilities and in clinical departments.

## III. Salary Comparisons: Penn's Competitive Standing

### A. Comparisons to Ivy Plus Universities.

To evaluate Penn faculty salaries relative to peers in the higher education market, SCESF compared academic base salaries at Penn to those at a set of highly competitive private research universities, including Ivy League schools and other premier private universities (Stanford, Chicago, etc.). We provide comparisons of mean academic base salaries for full, associate, and assistant professors at Penn to this peer group in Table 5 and Figures 1 and 2. Data are reported as peer salaries relative to mean salaries at Penn (Table 5). Penn faculty average salaries are presented relative to the average salary of faculty in this peer group in Figures 1 and 2.

The budgeting process for salary increases strives to achieve a competitive market position for the average Penn faculty member in the top half (75th percentile) among peer institutions (see details in last year's SCESF report at <http://www.upenn.edu/almanac/volumes/v62/n24/contents.html>). Among this group of comparable private research universities, Penn assistant professors are generally ranked at or near the top of the group since 2007 (Figure 2C). On average, assistant professors at Penn now earn over 9% more than the average in the Ivy Plus group. These competitive faculty salaries are not achieved at other ranks, however. The relative ranking for mean salaries for associate professors fell from 2/12 in 2007 to 7/12 in 2014, climbing up to barely above average, 5/12, in 2015. Full professors have remained near the middle of the group, above only four others. Of concern, average salaries of full professors have fallen further to 2% below the mean of our peer group (Figure 2A). From another perspective, over the last 4 consecutive years, our peers in the Ivy Plus have enjoyed a 3% increase in median salary at all ranks, while Penn's average annual increase in median salaries was 2.8%, 1.7%, and 3.9% for full, associate and assistant professors, respectively. In short, Penn is persistently losing ground in the higher education market for senior faculty.

SCESF supports the principle that both faculty and staff should be compensated for remarkable accomplishments. In the 2011 and 2015 Faculty Climate Surveys, only 55% and 59% (respectively) of faculty were satisfied or very satisfied with their salary, and the majority of the standing faculty (64% and 61%, respectively) responded that an increase in salary was a factor in their considering leaving Penn, making it the number one reason.<sup>4</sup> Higher shares of associate professors than assistant and full professors ranked salary as a reason for considering leaving Penn to some or a great extent (70% in 2011 and 69% in 2015). Some Penn faculty members seek outside offers to establish their competitive market value. While centralized budgeting delineates the wage pools for annual salary increases, alternative funding sources for faculty retention offer deans and department chairs flexibility for these ad hoc salary adjustments. The practice of

4 Data on the 2011 Faculty Climate Survey may be accessed with Penn Key authentication via <https://secure.www.upenn.edu/ir/results/Faculty%20Survey%202011.pdf> Faculty Climate Survey data from 2015 were not posted as of December 2016.

faculty soliciting offers to leave Penn in order to establish their credible value would likely be markedly curtailed if annual faculty salary increases were linked to market trends in faculty salaries at peer institutions, just as salaries of senior administrators are linked to national market trends and those of staff are linked to regional job markets.

## B. Comparisons to the Association of American Universities

The Association of American Universities Data Exchange (AAUDE) is a source of information about faculty salaries at an expanded group of peer universities. The Association of American Universities (AAU) comprises 60 public and private research universities in the United States and two in Canada. The AAU includes several Ivy League institutions (e.g., Penn, Brown, Harvard, Princeton, Cornell, and Yale), other private universities (e.g., Brandeis, Rice, Emory, Vanderbilt), public flagship universities (e.g., Penn State and the University of Michigan), and other public universities (e.g., Michigan State, University of California-Davis, and University of California-Irvine).<sup>5</sup>

Because of the marked variation in salaries across schools and academic levels, comparisons to the AAU dataset are broken out by academic field and rank in Table 4. Categories with fewer than five faculty members at Penn were omitted from the table to preserve confidentiality.

Across disciplines, Penn's national rank varies. It is expected that those disciplines consistently ranked high in their field should be compensated at a level near the top of the discipline. Rankings often change slowly, and SCESF monitors salary ranking fluctuations closely. SCESF notes few significant changes in salary rank from 2014 to 2015, with one noteworthy exception: mean faculty salaries in Natural Sciences (SAS) dropped two-three positions (out of 60) in their national peer group ranking in the past year across all three professorial ranks. SCESF expresses concern and recommends further investigation into the compensation awarded to Penn's excellent faculty in Natural Sciences (SAS) to ensure their competitive position nationally.

## IV. Salaries for Female Faculty Continue to Lag Behind their Male Counterparts

### A. Mean Salary Increases for Men and Women

Annual percentage increases in salary for faculty who continued in rank are generally similar for men and women faculty at Penn (Table 11).

### B. Persistent Gender Gap in Faculty Salaries at Penn

Despite the general parity in annual salary increases (Table 11), striking differences in base salaries for men and women have persisted over the years (Table 12). At the full professor level, comprised of 23% women (and 47% of women faculty who continued in rank), the mean academic year base salary for women is \$11,283 less than the mean salary for men at the same rank. At the associate professor rank, composed of 39% women (and 26% of women faculty continuing in rank), the mean salary for women is \$22,541 less than the mean salary for men. This wage gap between male and female associate professors has grown steadily over recent years, almost doubling since 2011-12. A substantial gap is also present at the entry level: the mean salary for assistant professors (41% of whom are women) is \$14,465 less for women than for men. As at other ranks, these salary differences for assistant professors have persisted over time. A wage gap at the assistant professor level (27% of women faculty who continued in rank) sets the stage for continuing disparities as faculty move through ranks. Any comprehensive program to reduce the gender gap must include close attention to starting assistant professor salaries.

Not surprisingly, these persistent historic salary wage gaps are accompanied by dissatisfaction of women faculty with their salary. In both the 2011 and 2015 Faculty Climate Surveys, only half of the women faculty were satisfied or very satisfied with their salary, significantly less than the two-thirds of the male faculty with a similar level of satisfaction.

### C. Factors Contributing to the Ongoing Disparity

A substantial portion of the wage disparity, evident in Table 12, results from differences in gender ratios in faculty across the different schools. Traditionally male-dominated fields benefit from higher salaries than those found in traditionally female-dominated fields. To examine the extent of this effect, the Vice Provost provided a weighted set of comparisons (Table 12). This adjustment computes the weighted average salary for women, for example, using weights based on the proportions of male faculty within different schools. Although this weighting reduces the

wage gap, a gender gap remains between the weighted values for men and women. This gender gap is apparent at all ranks within the weighted summary statistics, ranging up to 9.4% of adjusted mean salaries among associate professors. Some of this remaining gender gap may be attributed to the incomplete nature of this adjustment. Salary levels differ considerably across departments within schools at Penn, and the adjustments in Table 12 do not capture these distinctions.

To further explicate sources of the gender salary disparity, the Vice Provost provided SCESF with a regression analysis conducted by IR&A. This analysis regresses the log of base salary on gender, race/ethnicity, experience (measured by academic rank and time in rank), status as a department or endowed chair, and academic field. Academic field is roughly grouped at a school level, retaining some of the heterogeneity present in the weighted analysis of Table 12. The regression analysis finds that, without adjustment for field, rank, or time in rank, women have a base salary that is about 20% lower than that of male faculty. Adjustment for rank and ethnicity cuts this gap in half to about 10%, consistent with the fact that there are proportionally fewer women in higher paid ranks (women make up 23% of full professors, compared to 41% of assistant professors). Time in rank and having an administrative role or endowed chair are predictive of overall salary but have little influence on the gender gap. Adjustment for academic field, however, has a substantial impact and reduces the gender gap to around 2%, confirming that there are fewer women in highly paid disciplines. This 2% gender gap has persisted for the last 5 years, without demonstrable change in the significance of rank, ethnicity, time in rank, administrative role, endowed chair or discipline. The importance of discipline is consistent with the weighted analysis in Table 12, which shows a reduction in the wage gap to 2%-3% with the exception of associate professors, where the gap is much larger, 5%-9%. Some of the granular differences between Table 12 and the regression analysis may be attributed to the use of slightly different data. Table 12 limits the comparison to faculty who continued in rank, whereas the regression analysis includes promotions and appointments, and those in administrative positions (e.g., department chairs).

At the request of SCESF, the Vice Provost for Faculty asked IR&A to repeat the same regression analysis, but estimated separately for each faculty rank. By separating the data into assistant, associate and full professors, these models allow the impact of gender and academic field on salary to vary by rank. When specified in this manner, regression analysis finds a very small gender gap which is less than 1% among full and assistant professors; these estimates are not statistically significant. For associate professors, however, this regression analysis estimates an alarming gap of 5.5% that separates the salaries of male and female associate professors, consistent with the impression conveyed by the heuristic weighting in Table 12. A gender gap of 5.5% is statistically significant. Though the notion of statistical significance is problematic for these data (which essentially form the population), it provides a familiar measure of the effect size relative to unexplained variation in the data. Importantly, this gap at the associate professor level was independent of time in rank. SCESF notes that in the 2015 climate survey, associate professors as a group are collectively less satisfied with their experience at Penn than other faculty. About 40 percent of associate professors are women. SCESF recommends prompt attention to the gender gap at the associate professor level.

Given the importance of discipline on faculty salaries in the regression analyses, SCESF requested data from Table 12, within discipline, for combined ranks. Only Nursing was excluded because the number of male faculty was too low to be reported confidentially. When weighted by the number of men in the department, in several disciplines (SEAS, Natural Sciences (SAS), Wharton, PSOM-Basic Sciences, Vet) female faculty salaries were (<3%) greater than male salaries. In most disciplines, male salaries were larger than female faculty salaries, with Dental and Humanities (SAS) at 5%-10% of median weighted salaries, and Annenberg, GSE and Social Sciences (SAS) median salary gaps exceeding 10%. SCESF recommends urgent attention to these discipline-specific gender gaps in salary.

SCESF would like to have performed a more extensive regression analysis in order to identify sources of the remaining gender gap, for example incorporating a finer level of distinction among academic fields and a more thorough analysis of the role of time in rank. Aside from recognizing whether a faculty member has an endowed chair, the regression analysis does not account for research productivity or teaching performance. SCESF will continue to focus on the underlying mechanisms associated

<sup>5</sup> For a complete list of the member institutions, see the AAU website <http://www.aaupenn.edu/about/default.aspx?id=16710>

with these and other explanatory factors in upcoming years and identify potential interventions.

## V. Faculty Benefits at Penn

Benefits are an important aspect of total compensation and are of great interest to university faculty. Continuing a practice begun in 2015, this report includes faculty benefits data. Benefits data will continue to be included in the future, expanding in a stepwise manner, to provide more complete annual review of the competitive standing of faculty benefits. This year, we present data for Penn and 14 peer institutions for institutional contributions to retirement accounts and dependent tuition benefits. In the future, SCESF will add comparative data for sabbatical policy, early retirement incentives, and medical, vision, and dental insurance. A competitive benefits package is a key aspect in the equitable compensation of an outstanding faculty and retaining Penn's standing as a top-ranked university.

Penn offers two types of retirement plans. In the Basic Plan, the University makes contributions to 403(b) tax-deferred retirement accounts on an increasing scale with faculty member age (to a maximum of 4% of base salary at age 40 and over). Participants are automatically enrolled in the plan, University contributions begin after one year of service, and there is a 3-year vesting period, after which the funds remain available to the faculty member, even after leaving Penn. All 3,763 eligible standing and associated faculty take advantage of this benefit. The University also provides a Matching Plan whereby Penn matches participants' contributions up to the first 5% of eligible salary. In the Matching Plan, Penn matches the faculty member's contributions dollar-for-dollar in a 401(a) tax-deferred retirement account. There is no waiting period to begin the Matching Plan. The contribution limit increases with age to a maximum of 5% of salary below \$265,000 (at age 40 and over). 95% of eligible standing and associated faculty participate in the Matching Plan retirement account program. Details of these plans are provided at <https://www.hr.upenn.edu/myhr/benefits/retirement> Enrollment in the retirement plans is on a continuing basis, and faculty need not wait for Spring Benefits Open Enrollment period to enroll or change their contribution level. Penn's maximum contribution of 9% (4% to 403(b) plus 5% to 401(a)) is below the Ivy Plus group median of 10% (Table 13).

Penn offers tuition benefits for faculty members, their partners, and their dependents. Benefits depend on whether enrollment is at Penn or another institution and are different for faculty hired before 1997. Benefits for two parent-partners employed at Penn are not summed, so when partners are both employed at Penn, only one tuition benefit can be used for each child. Currently Penn covers 75% of the tuition and technology fees (\$34,761 in FY2017) for dependents of 188 faculty who are enrolled at Penn ("home") and up to 40% of Penn's tuition fee (\$18,222 in FY2017) for dependents of 422 faculty who are enrolled at an approved school ("away"). (Faculty participation statistics are for the calendar year 2016.) Penn's tuition benefits are more generous than the median tuition benefit offered by the Ivy Plus institutions (\$24,572 for "home" tuition and \$15,560 for "away").

While individual benefits are more or less generous at Penn, Penn strives to create a suite of benefits that, overall, rank in the top half (approximately 75th percentile) of the Ivy Plus institutions. SCESF recommends that increasing the maximum contribution of retirement benefits to 10%, the typical limit among Ivy Plus institutions, would be a constructive step toward this objective.

## VI. Issues of Concern and Recommendations from the SCESF

Penn's continued prominence as an eminent university requires academic excellence in the faculty across all schools and disciplines, and this excellence is based directly on the quality of the faculty recruited to, and retained by, our university. We encourage the President, Provost, Deans, and the faculty-at-large to continue to monitor closely faculty compensation across the entire university in order to maintain Penn's competitive position with peer institutions and eliminate salary disparities based on gender, as well as other characteristics that were unexamined in this report including race, ethnicity, and sexual orientation.

In accordance with Faculty Senate policy, we present the following issues of concern and our recommendations to address these issues:

### A. Assessing the Economic Status of the Entire Faculty

**Issue of Concern:** The Committee on the Economic Status of the Faculty is charged to gather and organize data on academic base salaries and benefits for the faculty and to represent the faculty in the determination of University policy on salary issues. This year, SCESF was provided academic base salary data on 1,227 tenure line faculty, of whom 1,128 were continuing in rank. Penn is composed of 2,566 standing faculty in the tenure and clinician-educator tracks and 2,079 associated faculty in the research faculty, academic clinician (health schools), clinical faculty (health schools), adjunct faculty, visiting faculty, Wistar appointments, and Artists in Residence.<sup>6</sup> Historically, this Committee falls short of its charge because the Provost's Office provides academic base salary data for only approximately 48% of the standing faculty and less than 30% of the entire faculty.

**SCESF Recommendation:** To provide a more complete analysis of faculty salary and benefits, SCESF requests that data from the Provost's Office be expanded next year to include the academic base salary for all standing faculty, subject to the standard exclusion of Deans and faculty members in phased retirement. This year SCESF reports on the distinguishing features of PSOM salary adjustment procedures. With this foundational knowledge, next year SCESF will again request the PSOM standing faculty data and analyze it along with data from every other school at Penn. Future requests may extend to the associated faculty, currently 2,079 in number.

**Response:** *The Provost's Office provided the Senate with salary data organized into twelve tables, along with information about Penn's retirement and dependent tuition benefits. SCESF created Table 13, incorporating information obtained through the Vice Provost for Faculty from the Office of Human Resources. In addition to providing the Senate with specific data reflected in this report, the Provost's Office fielded requests from SCESF for information relating to sabbatical, faculty families, and clinical department salaries.*

*In this report, SCESF characterizes its charge under the Rules of the Faculty Senate as assessing the economic status of the entire faculty. This expansive characterization of SCESF's charge is inconsistent with understandings of the scope of SCESF's data gathering and reporting that date back more than twenty years. Salary data on tenure-track faculty in the eighteen clinical departments, CE-track faculty, and Associated Faculty have never been included.*

*The Senate, PSOM and the Office of the Provost have met to discuss the feasibility of providing SCESF with the adjusted base salaries of the approximately 240 tenure-track faculty members housed in PSOM's clinical departments. A final determination of whether PSOM assents to new disclosures and their logistics, perhaps only on a confidential basis for internal use by SCESF, has not yet been reached.*

*SCESF states that future faculty salary data requests may extend to salary data for the Associated Faculty. The Associated Faculty currently number 1,886, including 1062 faculty members who are full-time and 824 who are part-time, and falling into more than a half dozen distinct faculty categories across the university. Of the full-time Associated Faculty, 1,408 are housed in PSOM's clinical departments, as are 491 of the part-time Associated Faculty. The variability and incommensurability of roles and compensation metrics raise significant practical issues to organizing compensation data. In addition, Associated Faculty compensation is not subject to the Provost's merit pool increase review process; oversight by the Provost occurs as part of the Schools' overall budget reviews.*

### B. Maintaining Penn's Competitive Standing

**Issue of Concern:** To attract and retain an eminent faculty, the University must provide faculty salaries that are competitive with peer institutions in the top tier of US research universities. Penn's stated goal is to provide compensation, on average, in the middle of the upper half of our most relevant peer group, the Ivy Plus institutions (see details in last year's SCESF report <http://www.upenn.edu/almanac/volumes/v62/n24/contents.html>). Comparisons of mean salaries at Penn to this peer group show that Penn assistant professors have consistently ranked at or near the top of the group since 2006. However, the relative ranking for mean salaries for associate professors has fallen to just above average over the same time period, and full professors have remained at or below the middle of the group. Average salaries of full professors have been below the mean of

<sup>6</sup> Retrieved December 15, 2016, from <http://www.upenn.edu/about/facts>

our peer group for four consecutive years. Over the same four years, our peers in the Ivy Plus have enjoyed a 3% increase in median salary at all ranks, while Penn's average annual increase in median salaries was 2.8%, 1.7%, and 3.9% for full, associate and assistant professors. Together, these data reveal that Penn's salaries and the annual increases for tenured professors are below those of Penn's market cohort in highly competitive institutions of higher learning, eroding Penn's ability to compete with peers to retain the best talent. Associate and full professors have adopted the ad hoc practice of re-aligning their salary by obtaining outside offers to establish their market value. However, in the context of annual increases that are below those of Penn's peers for tenured faculty, these base salary adjustments provide only a temporary correction and disadvantage faculty who are not geographically mobile.

**SCESF Recommendation:** SCESF recommends that faculty salary data for our peer institutions (provided in Table 5) be used in the rolling 5-year University budget process to determine an appropriate parameter for annual salary increases for Penn faculty and that peers-within-disciplines (e.g., Association of American Universities Data Exchange (AAUDE) information in Table 4) be used by Deans to correct faculty salaries, and provide Penn's faculty with competitive compensation.

**Response:** *The University is strongly committed to competitive compensation. As illustrated in Table 5, the mean salaries of Penn Assistant, Associate and Full Professors are favorably ranked among 12 Ivy Plus research universities, some located in major cities with higher costs of living. Penn's package of base salaries and health, tuition, and retirement benefits is extremely competitive.*

*SCESF is concerned that a 3% merit increase pool is becoming ossified, harming competitiveness and faculty satisfaction, and is recommending that faculty salary data for our peer institutions be used in the rolling 5-year University budget process to determine an appropriate parameter for annual salary increases for Penn faculty. The 3% merit pool serves as guidance for the Schools and has not functioned as a fixed ceiling constraining actual faculty salary increases. The limited availability of current-academic-year faculty salaries for peer institutions and the absence of relevant market survey data to inform reliable projections render five-year planning parameters mere estimates. The University affords the Schools flexibility to use AAUDE data found in Table 4 and other relevant peer and professional data to ensure appropriate responses to market conditions affecting each field and discipline. Regular review by the Provost's Office further helps to promote the fairness and equity of School salaries.*

### C. Achieving Gender Equity at Penn

**Issue of Concern:** In the context of federal mandates to eliminate race and gender bias in compensation in all institutions receiving federal contracts, SCESF remains concerned about the persistent gender inequity in faculty salaries observed at all ranks at Penn. SCESF notes that this continued inequity is inconsistent with the aims of the Action Plan for Faculty Diversity (<http://www.upenn.edu/almanac/volumes/v58/n02/diversity-plan.html>). A regression analysis reveals that much of the salary gap is explained by the influences of rank, time in rank and discipline. However, in the context of 3% annual salary increases for the faculty overall, SCESF finds a persistent, 5-year 2% salary gap after correcting for rank and discipline distressing. These gender inequities are pronounced, persistent and significant in the associate professor rank, and in several schools (without accounting for rank). The impact of gender bias in salary extends beyond a faculty member's career at Penn, because the institutional contribution to faculty retirement benefits is linked to salary.

**SCESF Recommendation:** We urge the President, Provost, and the Deans to focus on eliminating gender inequities in faculty salaries within ranks and disciplines across the university. SCESF applauds the introduction of a separate systematic salary review process by the Provost's Office for FY2016 to highlight individual salary disparities associated with

race, ethnicity and gender, however our regression analyses of FY2017 reveal little influence of this review process in reducing gender inequities, after correcting for rank and discipline. Given the significant impact of rank and time in rank on salaries, SCESF recommends attention, oversight and mentoring to ensure that women associate professors are being promoted to full professor in a timely manner. To examine and monitor progress in discipline-specific disparities in the weighted and unweighted data, SCESF requests that data regarding gender disparity within rank and across disciplines be provided on a continuing basis. SCESF will work with the Provost's office to develop research productivity and teaching quality metrics that will add value to future regression analyses.

**Response:** *Because fair salaries help to recruit and retain faculty, salary equity is a paramount concern of the President, Provost, and Deans, as it is for SCESF. Between fall 2011 and fall 2016, 41.7% of new hires were women. In the past five years, Penn has successfully recruited 304 new women faculty to the standing faculty, increasing the number of women faculty by 9% compared to only a 2% increase in the number of total standing faculty.*

*In determining salaries, the Schools use discipline-specific evidence of scholarship, teaching, mentoring, training, administrative roles, clinical skill, grants, and service excellence, as well as relevant metrics for external and internal markets. At present, there is no perceptible gender gap in the allocation of annual merit increases. Some of the gap discerned in new Assistant Professor salaries relates to differences in employment markets and disciplines within and across the Schools. The Office of Institutional Research and Analysis (IRA) performs regular regression analyses on salary data to help the University monitor gender equity. After correcting for rank, time in rank, and discipline, the gap between male and female salaries in fall 2016 was a 1.9% difference.*

*With the approval of the Provost's Office, equity adjustments to base salaries are now possible both in annual salary-setting and in reviews initiated by the Deans in the contexts of new hires, promotions, and re-tentions. Moreover, since the spring of 2015, the Vice Provost for Faculty has begun to conduct equity reviews in selected Schools and departments in advance of the annual June salary-setting season. The Provost will continue to work with the Schools toward closing the gender gap in those disciplines, departments, ranks and Schools where significant differences remain.*

## VII. Members of the Committee 2016-2017 Committee Members

Kenneth Burdett, SAS/Economics  
 Robert Ghrist, SAS/Mathematics;  
 SEAS/Electrical & Systems Engineering  
 Robert Hollebeek, SAS/Physics & Astronomy  
 Susan Margulies, SEAS/Bioengineering, *Co-Chair*  
 Iouri Manovskii, SAS/Economics  
 Andrew Postlewaite, SAS/Economics  
 Bob Stine, Wharton, *Co-Chair*  
*Ex Officio:*  
 Laura Perna, GSE, Faculty Senate Chair  
 Reed Pyeritz, PSOM/Medicine and Genetics,  
 Faculty Senate Past Chair  
 Santosh Venkatesh, SEAS/ESE, Faculty Senate Chair-Elect

The Committee gratefully acknowledges the essential and invaluable assistance of J. Patrick Walsh of the Office of the Faculty Senate and the additional information provided in response to SCESF requests by the offices of the Provost, Institutional Research and Analysis and Human Resources. The Committee also notes that this year's report directly benefited from presentation and analysis described in reports from previous years and, where appropriate, some previous text is included here.

## VIII. Figures and Tables

**Table 1**  
Average academic base salary percentage increases of continuing Penn standing faculty members by rank in comparison with the Consumer Price Index (CPI) and Penn Budget Guidelines

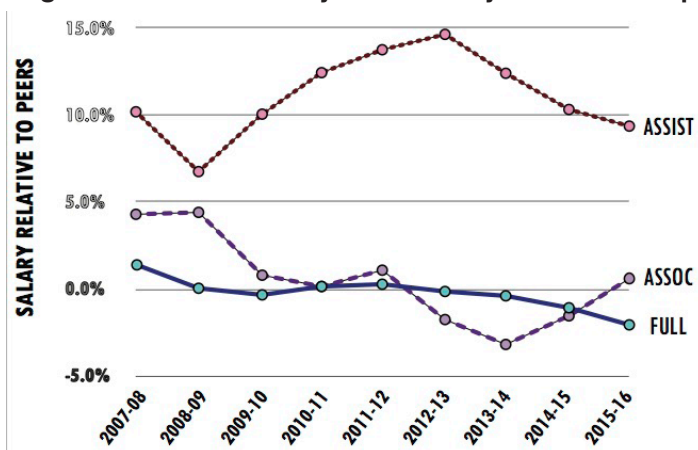
Group/Condition/Metric		FY 2015-2016
Professor	Mean	4.5%
	Median	3.0%
Associate Professor	Mean	5.8%
	Median	3.0%
Assistant Professor	Mean	3.7%
	Median	3.0%
All Three Ranks	Mean	4.6%
	Median	3.0%
US City Average CPI Growth	Mean	1.0%
Phil. CPI Growth	Mean	0.1%
Budget Guidelines	Mean	3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

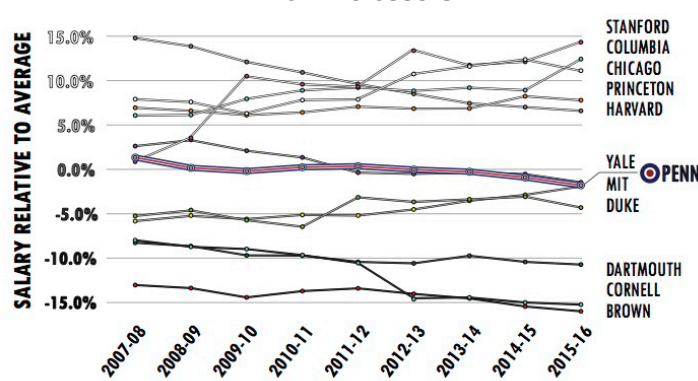
Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2015-2016 CPI growth for the US and for Philadelphia are based on a change in CPI from June 2015 to June 2016.

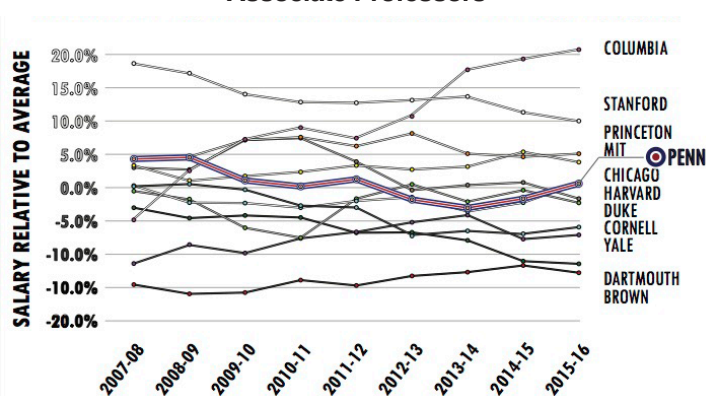
**Figure 1: Mean Penn Salary Relative to Ivy Plus Peer Group**



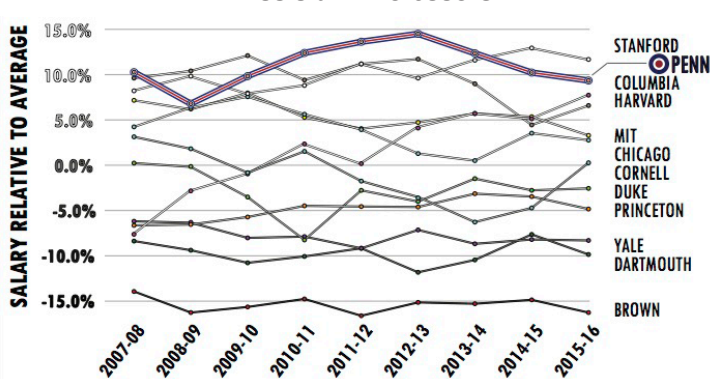
**Figure 2A: Mean Peer Group Salary Relative to Average: Full Professors**



**Figure 2B: Mean Peer Group Salary Relative to Average: Associate Professors**



**Figure 2C: Mean Peer Group Salary Relative to Average: Assistant Professors**



**Table 2**

Percentage of continuing Penn standing faculty members awarded percentage salary increases exceeding the percentage growth in the consumer price index (CPI) for Philadelphia

Schools and Disciplinary Areas	Percentage of all Standing Faculty with Salary Increases Exceeding Growth in the CPI (Phil.) FY 2015-2016
Annenberg	88.2%
Dental Medicine	87.5%
Design	94.3%
Engineering & Applied Science	100%
Graduate Education	100%
Humanities (A&S)	99.4%
Law	100%
Natural Science (A&S)	100%
Nursing	100%
Perelman-Basic Science	94.3%
Social Policy & Practice	100%
Social Science (A&S)	100%
Veterinary Medicine	100%
Wharton	99.5%
All Schools/Areas	98.6%
US City Average CPI Growth	1.0%
Phil. CPI Growth	0.1%
Budget Guidelines	3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2015-2016 CPI growth for the US and for Philadelphia are based on a change in CPI from June 2015 to June 2016.

**Table 3**  
**Percentage of continuing Penn FULL PROFESSORS awarded**  
**percentage salary increases exceeding the percentage growth in the**  
**consumer price index (CPI) for Philadelphia**

Schools and Disciplinary Areas	Percentage of all Full Professors with Salary Increases Exceeding Growth in the CPI (Phil.) FY 2015-2016	
Annenberg		90.0%
Dental Medicine		90.5%
Design		93.3%
Engineering & Applied Science		100%
Graduate Education		100%
Humanities (A&S)		99.0%
Law		100%
Natural Science (A&S)		100%
Nursing		100%
Perelman-Basic Science		90.7%
Social Policy & Practice		100%
Social Science (A&S)		100%
Veterinary Medicine		100%
Wharton		100%
All Schools/Areas		98.2%
US City Average CPI Growth *	1.0%	
Phil. CPI Growth *		0.1%
Budget Guidelines +		3.0%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

FY 2015-2016 CPI growth for the US and for Philadelphia are based on a change in CPI from June 2015 to June 2016



**Table 4**  
**Rank of mean salaries of Penn faculty by academic fields as compared to universities participating in the Association of American Universities Data Exchange (AAUDE) survey.**

<b>Academic Field</b>	<b>Fall 2009</b>	<b>Fall 2010</b>	<b>Fall 2011</b>	<b>Fall 2012</b>	<b>Fall 2013</b>	<b>Fall 2014</b>	<b>Fall 2015</b>
<b>Full Professor</b>							
Annenberg	1/40	1/41	1/41	1/39	1/43	1/43	1/43
Dental Medicine	2/44	9/45	10/45	9/43	9/44	11/44	10/46
Design	5/51	5/55	10/53	11/52	10/55	11/56	11/57
Engineering & Applied Science	11/53	13/57	13/55	14/54	13/58	14/59	17/59
Graduate Education	4/44	6/47	6/47	7/45	4/45	6/45	6/47
Humanities (A&S)	9/54	9/58	7/56	11/55	11/58	10/59	11/60
Law	7/37	8/40	7/39	8/38	7/39	8/38	6/41
Natural Science (A&S)	15/54	14/58	12/56	11/55	14/58	15/59	18/60
Nursing	2/24	1/17	1/19	1/19	1/21	3/23	1/24
Perelman - Basic Science	6/54	6/58	6/56	8/55	7/58	8/59	9/60
Social Policy & Practice	7/23	8/25	6/25	6/23	6/26	4/27	3/27
Social Science (A&S)	8/54	9/57	8/56	9/55	9/57	9/58	7/59
Veterinary Medicine	3/13	3/14	3/14	4/13	2/13	3/13	4/13
Wharton-Business & Management	4/51	5/55	5/53	2/52	3/55	2/56	1/56
Wharton-Public Policy	15/52	-	13/54	12/53	5/55	9/56	10/57
Wharton-Statistics	1/32	1/36	1/34	2/34	2/36	2/34	1/34
<b>Associate Professor</b>							
Annenberg	-	-	-	-	-	-	-
Dental Medicine	9/42	9/43	13/43	9/41	-	6/44	-
Design	3/51	3/55	1/51	3/51	3/52	3/54	4/56
Engineering & Applied Science	7/53	8/57	11/54	11/53	10/56	11/57	10/57
Graduate Education	4/44	8/48	8/45	9/44	9/44	6/45	6/47
Humanities (A&S)	12/54	12/57	11/55	13/54	12/57	10/58	9/59
Law	-	-	-	-	-	-	-
Natural Science (A&S)	14/54	14/58	15/56	17/55	17/58	15/58	17/59
Nursing	6/23	3/17	5/19	3/19	2/21	7/24	7/25
Perelman - Basic Science	7/54	8/58	4/55	4/54	3/57	4/58	5/59
Social Policy & Practice	-	-	-	-	-	-	-
Social Science (A&S)	8/54	7/57	8/56	14/55	10/56	7/57	8/58
Veterinary Medicine	9/13	11/14	6/14	6/13	7/13	7/13	4/13
Wharton-Business & Management	2/50	2/54	2/51	2/51	3/54	3/56	3/56
Wharton-Public Policy	-	-	-	-	-	-	-
Wharton-Statistics	-	3/31	2/27	2/30	-	-	-
<b>Assistant Professor</b>							
Annenberg	-	-	-	-	3/41	3/42	-
Dental Medicine	8/43	-	-	-	-	-	-
Design	4/50	6/55	6/51	4/50	5/54	7/55	7/56
Engineering & Applied Science	5/53	6/57	7/54	8/54	8/58	10/59	6/59
Graduate Education	6/43	7/47	-	15/43	12/44	13/44	11/46
Humanities (A&S)	14/54	14/58	14/56	17/55	14/58	13/59	9/59
Law	6/25	5/25	6/27	-	-	-	-
Natural Science (A&S)	15/54	15/58	15/56	22/55	16/58	18/59	20/60
Nursing	3/23	2/17	3/19	2/19	3/21	5/24	5/25
Perelman - Basic Science	10/54	8/58	6/56	9/55	9/58	10/59	15/60
Social Policy & Practice	6/25	6/25	-	5/24	5/26	5/27	6/27
Social Science (A&S)	11/54	8/57	7/56	8/55	7/57	8/58	11/59
Veterinary Medicine	5/13	6/14	5/14	5/12	5/13	5/13	5/13
Wharton-Business & Management	5/50	4/54	4/52	4/51	5/54	7/55	4/56
Wharton-Public Policy	1/51	-	1/54	1/53	1/52	1/55	1/56
Wharton-Statistics	-	-	-	-	-	-	-

Median salary data from this particular data source is not complete, and therefore, the more complete average salary data set is used. The AAUDE survey instructions request academic base salaries and this was the metric used for submitting Penn faculty salaries.

Using the federal CIP (Classification of Instructional Programs) codes for 2000, departments at comparable universities were mapped to Penn Schools.

Calculations of rank only include those universities that have relevant departments. Therefore, the number of universities among which Penn is ranked varies by field.

Rank is suppressed for all cells which contain fewer than five Penn faculty members.

**Table 5**

**Percentage differences in mean academic base salary levels of Professors at a sample of comparable research universities for Academic Years 2010-2011 through 2015-2016**

Full Professors						
Mean Academic Base Salaries: Percentage Differences*						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Columbia	9.3%	8.9%	13.5%	12.1%	13.4%	16.6%
Chicago	8.7%	8.9%	8.9%	9.6%	10.0%	14.7%
Stanford	7.6%	7.6%	10.9%	11.9%	13.6%	13.3%
Princeton	6.2%	6.7%	7.0%	7.2%	9.3%	9.9%
Harvard	10.7%	9.3%	8.6%	7.7%	8.1%	8.7%
Yale	1.1%	-0.7%	-0.4%	-0.1%	0.5%	0.4%
<b>Penn</b>	<b>\$175.1</b>	<b>\$181.6</b>	<b>\$187.0</b>	<b>\$192.3</b>	<b>\$197.5</b>	<b>\$202.6</b>
MIT	-5.3%	-5.4%	-4.4%	-3.3%	-1.8%	0.0%
Duke	-6.7%	-3.5%	-3.6%	-3.1%	-2.1%	-2.4%
Dartmouth	-9.9%	-10.7%	-10.5%	-9.5%	-9.6%	-9.0%
Cornell	-9.9%	-10.9%	-14.5%	-14.2%	-14.2%	-13.6%
Brown	-13.9%	-13.7%	-14.0%	-14.4%	-14.6%	-14.3%

NOTES: Penn academic base mean salaries are based on standing faculty members at the rank of professor. Excluded are all members of the Faculty of Medicine except basic scientists, and all standing faculty members who are appointed as Clinician Educators. Data Source: AAUP Salary Surveys.

\*Universities are ordered from highest to lowest percentage difference for full professors as of 2015-2016. For each year reported, the difference between the Penn mean salary and the mean salary for a comparison university was computed as a percentage of the Penn salary.

**Associate Professors**

Mean Academic Base Salaries: Percentage Differences						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Columbia	8.9%	6.1%	12.9%	21.6%	21.2%	20.0%
Stanford	12.7%	11.4%	15.2%	17.3%	13.0%	9.2%
Princeton	7.4%	5.0%	10.1%	8.5%	6.2%	4.5%
MIT	2.3%	2.1%	4.5%	6.4%	7.0%	3.2%
<b>Penn</b>	<b>\$112.5</b>	<b>\$117.8</b>	<b>\$117.3</b>	<b>\$119.5</b>	<b>\$125.2</b>	<b>\$132.3</b>
Chicago	-3.2%	-3.1%	0.3%	-0.5%	-0.7%	-0.1%
Harvard	7.3%	2.6%	1.4%	3.6%	2.3%	-2.3%
Duke	-7.6%	-2.8%	2.3%	1.1%	1.3%	-2.9%
Cornell	-2.8%	-4.1%	-5.6%	-3.5%	-5.5%	-6.5%
Yale	-7.7%	-7.8%	-3.6%	-1.0%	-6.3%	-7.7%
Dartmouth	-4.6%	-7.9%	-4.9%	-4.9%	-9.6%	-11.9%
Brown	-14.0%	-15.7%	-11.9%	-10.0%	-10.3%	-13.3%

**Assistant Professors**

Mean Academic Base Salaries: Percentage Differences						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Stanford	-3.2%	-2.2%	-4.2%	-0.4%	2.4%	2.1%
<b>Penn</b>	<b>\$106.8</b>	<b>\$112.3</b>	<b>\$116.2</b>	<b>\$118.0</b>	<b>\$119.6</b>	<b>\$123.3</b>
Columbia	-9.0%	-11.8%	-9.0%	-6.0%	-4.6%	-1.5%
Harvard	-2.6%	-2.2%	-2.4%	-3.0%	-5.3%	-2.5%
MIT	-6.4%	-8.5%	-8.5%	-5.8%	-4.4%	-5.6%
Chicago	-5.9%	-8.6%	-11.6%	-10.5%	-6.1%	-6.1%
Cornell	-9.6%	-13.6%	-15.8%	-16.6%	-13.6%	-8.4%
Duke	-18.4%	-14.5%	-16.3%	-12.3%	-11.9%	-10.9%
Princeton	-15.0%	-16.1%	-16.7%	-13.8%	-12.5%	-13.0%
Yale	-18.1%	-20.1%	-18.9%	-18.7%	-16.7%	-16.2%
Dartmouth	-20.0%	-20.1%	-23.1%	-20.3%	-16.3%	-17.6%
Brown	-24.3%	-26.7%	-26.0%	-24.7%	-22.8%	-23.5%

**Table 6**

**FULL PROFESSORS: Median academic base salary percentage increases of faculty continuing in rank who were Penn FULL PROFESSORS for FY2016, along with the first and third quartile salary increases**

School/Area	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2015-2016		
	(Q1)	(Md.)	(Q3)
All Schools	2.8%	3.0%	3.5%
Annenberg	2.9%	3.3%	3.5%
Dental Medicine	2.9%	3.3%	3.3%
Design	2.0%	2.8%	3.0%
Engineering & Applied Science	2.5%	3.2%	4.5%
Graduate Education	3.0%	3.5%	4.3%
Humanities (A&S)	2.6%	2.8%	3.5%
Law	3.3%	3.3%	3.4%
Natural Science (A&S)	2.5%	2.8%	3.2%
Nursing	3.0%	3.0%	3.3%
Perelman-Basic Science	3.0%	3.0%	3.3%
Social Policy & Practice	3.0%	3.0%	3.3%
Social Science (A&S)	2.8%	2.9%	3.3%
Veterinary Medicine	1.9%	2.7%	3.0%
Wharton	3.0%	3.4%	4.3%
Budget Guidelines +		3.0%	

NOTES: The Budget Guideline is provided for comparison purposes. As per Penn policy, it is a guideline for the salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Salary increases include increases from all sources (e.g. merit, market, retention).

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) percentages provides a measure of variability in the percentages increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above

Median increases are reported only if the number of faculty members in a given school and rank is five or more; quartile increase are reported only if the number of faculty members is nine or more.

**Table 7**  
**ASSOCIATE PROFESSORS: Median academic base salary**  
**percentage increases of faculty continuing in rank who were Penn**  
**ASSOCIATE PROFESSORS for FY2016,**  
**along with the first and third quartile salary increases**

School/Area	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2015-2016		
	Q1	Md.	Q3
All Schools	2.8%	3.0%	3.8%
Annenberg			
Dental Medicine			
Design		3.0%	
Engineering & Applied Science	2.6%	3.9%	5.0%
Graduate Education		3.8%	
Humanities (A&S)	2.7%	2.9%	4.0%
Law			
Natural Science (A&S)	2.7%	2.8%	2.9%
Nursing	2.8%	2.8%	6.5%
Perelman-Basic Science	3.0%	3.0%	3.3%
Social Policy & Practice			
Social Science (A&S)	2.8%	3.0%	4.3%
Veterinary Medicine	2.8%	3.0%	3.0%
Wharton	3.0%	3.6%	4.4%
Budget Guidelines +		3.0%	

NOTES: The Budget Guideline is provided for comparison purposes. As per Penn policy, it is a guideline for the salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Salary increases include increases from all sources (e.g. merit, market, retention).

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) percentages provides a measure of variability in the percentages increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above.

Median increases are reported only if the number of faculty members in a given school and rank is five or more; quartile increase are reported only if the number of faculty members is nine or more.

**Table 8**  
**ASSISTANT PROFESSORS: Median academic base salary**  
**percentage increases of faculty continuing in rank who were Penn**  
**ASSISTANT PROFESSORS for FY2016,**  
**along with the first and third quartile salary increases**

School/Area	First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2015-2016		
	Q1	Md.	Q3
All Schools	3.0%	3.0%	3.7%
Annenberg			
Dental Medicine	n/a	n/a	n/a
Design	2.3%	3.0%	3.5%
Engineering & Applied Science	3.1%	3.7%	4.2%
Graduate Education		3.5%	
Humanities (A&S)	2.8%	2.8%	3.0%
Law			
Natural Science (A&S)	2.9%	3.1%	3.4%
Nursing		3.0%	
Perelman-Basic Science	3.0%	3.0%	4.5%
Social Policy & Practice		3.0%	
Social Science (A&S)	2.9%	3.0%	3.0%
Veterinary Medicine	2.6%	3.0%	3.3%
Wharton	3.0%	3.1%	4.8%
Budget Guidelines +		3.0%	

NOTES: The Budget Guideline is provided for comparison purposes. As per Penn policy, it is a guideline for the salary increment pool for all standing faculty members in each school, but not specifically for each rank.

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Salary increases include increases from all sources (e.g. merit, market, retention).

The median (Md.) percentage salary increase is the mid-point of all increases within each school and rank (i.e. half of all increases are below the median and half are above).

The difference between the third (Q3) and first quartile (Q1) percentages provides a measure of variability in the percentages increases for each school and rank.

At the lower end of the salary increase percentages, 25% of all increases are below Q1, while 75% are above.

Median increases are reported only if the number of faculty members in a given school and rank is five or more; quartile increase are reported only if the number of faculty members is nine or more.

**Table 9**  
**Mean academic base salary levels of Penn standing faculty members who continued in rank by rank.**  
**Faculty on paid leave or unpaid leave are reported at their full salary.**

	Rank/Academic Year/Metric		Amount	Not Weighted	Weighted	
<b>Professor</b>	2011-2012	Mean	\$183,176	1.66	1.81	
		Median	\$166,463	1.80	1.80	
	2012-2013	Mean	\$188,537	1.64	1.82	
		Median	\$171,500	1.88	1.82	
	2013-2014	Mean	\$194,443	1.66	1.83	
		Median	\$176,072	1.86	1.84	
	2014-2015	Mean	\$200,643	1.67	1.84	
		Median	\$182,017	1.84	1.81	
	2015-2016	Mean	\$207,440	1.71	1.84	
		Median	\$187,571	1.88	1.83	
	<b>Associate Professor</b>	2011-2012	Mean	\$115,457	1.05	1.22
			Median	\$102,929	1.11	1.21
2012-2013		Mean	\$117,826	1.02	1.21	
		Median	\$104,508	1.14	1.21	
2013-2014		Mean	\$119,064	1.02	1.22	
		Median	\$106,900	1.13	1.24	
2014-2015		Mean	\$124,375	1.04	1.24	
		Median	\$109,283	1.11	1.23	
2015-2016		Mean	\$130,872	1.08	1.25	
		Median	\$113,300	1.14	1.26	
<b>Assistant Professor</b>		2011-2012	Mean	\$110,157	1.00	1.00
			Median	\$92,400	1.00	1.00
	2012-2013	Mean	\$115,168	1.00	1.00	
		Median	\$91,400	1.00	1.00	
	2013-2014	Mean	\$117,100	1.00	1.00	
		Median	\$94,480	1.00	1.00	
	2014-2015	Mean	\$119,825	1.00	1.00	
		Median	\$98,728	1.00	1.00	
	2015-2016	Mean	\$121,590	1.00	1.00	
		Median	\$99,535	1.00	1.00	

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

The data are weighted by the number of continuing faculty members at each rank in each school.

**Table 10**  
**Variability of academic base salary levels for faculty who continued in rank:**  
**first, second and third quartile median salary levels by rank and year**

<b>Rank/Academic Year</b>	<b>Q1</b>	<b>Median</b>	<b>Q3</b>	<b>IQR</b>	<b>IQR-to-# of Areas</b>	<b>Median Ratio</b>	
Professor	2011-2012	\$139,318	\$166,463	\$218,935	\$79,617	0.48	14
	2012-2013	\$142,300	\$171,500	\$224,500	\$82,200	0.48	14
	2013-2014	\$145,500	\$176,072	\$232,093	\$86,593	0.49	14
	2014-2015	\$149,037	\$182,017	\$240,350	\$91,313	0.50	14
	2015-2016	\$152,200	\$187,571	\$249,474	\$97,274	0.52	14
Associate	2011-2012	\$90,000	\$102,929	\$120,025	\$30,025	0.29	13
Professor	2012-2013	\$91,950	\$104,508	\$122,829	\$30,879	0.30	13
	2013-2014	\$94,800	\$106,900	\$123,500	\$28,700	0.27	13
	2014-2015	\$98,088	\$109,283	\$129,878	\$31,790	0.29	14
	2015-2016	\$101,414	\$113,300	\$134,386	\$32,972	0.29	14
Assistant	2011-2012	\$78,849	\$92,400	\$146,000	\$67,151	0.73	14
Professor	2012-2013	\$82,025	\$91,400	\$158,000	\$75,975	0.83	13
	2013-2014	\$83,659	\$94,480	\$161,000	\$77,341	0.82	14
	2014-2015	\$85,807	\$98,728	\$164,375	\$78,568	0.80	14
	2015-2016	\$87,009	\$99,535	\$165,000	\$77,991	0.78	13

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

**Table 11**  
**Percentage Salary Increase Distribution of Faculty Who**  
**Continued in Rank by sex and rank**

<b>Rank/Sex</b>	<b>First Quartile (Q1), Median (Md.), and Third Quartile (Q3) Percentage Salary Increases, FY 2015-2016</b>			
	<b>Q1</b>	<b>Md.</b>	<b>Q3</b>	
<b>Professor</b>	Men	2.6%	3.0%	3.5%
	Women	2.8%	3.0%	3.7%
<b>Associate Professor</b>	Men	2.8%	3.0%	3.8%
	Women	2.8%	3.0%	4.0%
<b>Assistant Professor</b>	Men	3.0%	3.0%	3.9%
	Women	3.0%	3.0%	3.5%

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

**Table 12**  
**Mean academic base salary levels of Penn standing faculty members who continued in rank by rank and sex.**  
**Faculty on paid leave or unpaid leave are reported at their full salary.**

Rank/Academic Year/Metric	Unweighted			Weighted			Men - Women		
	Women	Men	% Difference	Women	Men	% Difference	Unweighted	Weighted	
<b>Professor</b>									
2011-2012	Mean	\$172,035	\$186,174	8.2%	\$179,594	\$186,174	3.7%	\$14,139	\$6,580
	Median	\$158,631	\$169,112	6.6%	\$178,739	\$180,688	1.1%		
2012-2013	Mean	\$178,939	\$191,240	6.9%	\$187,240	\$191,240	2.1%	\$12,301	\$4,000
	Median	\$167,606	\$172,921	3.2%	\$186,092	\$187,320	0.7%		
2013-2014	Mean	\$183,418	\$197,811	7.8%	\$192,926	\$197,811	2.5%	\$14,393	\$4,885
	Median	\$169,373	\$179,000	5.7%	\$192,634	\$194,587	1.0%		
2014-2015	Mean	\$188,619	\$204,309	8.3%	\$199,277	\$204,309	2.5%	\$15,690	\$5,032
	Median	\$175,975	\$185,000	5.1%	\$197,029	\$200,227	1.6%		
2015-2016	Mean	\$198,783	\$210,066	5.7%	\$208,639	\$210,066	0.7%	\$11,283	\$1,427
	Median	\$181,442	\$190,000	4.7%	\$203,478	\$205,589	1.0%		
<b>Associate Professor</b>									
2011-2012	Mean	\$107,783	\$119,589	11.0%	\$118,744	\$119,589	0.7%	\$11,806	\$845
	Median	\$97,250	\$108,000	11.1%	\$116,755	\$116,911	0.1%		
2012-2013	Mean	\$107,877	\$123,145	14.2%	\$119,492	\$123,145	3.1%	\$15,268	\$3,653
	Median	\$98,350	\$110,153	12.0%	\$120,071	\$120,546	0.4%		
2013-2014	Mean	\$108,925	\$125,067	14.8%	\$119,010	\$125,067	5.1%	\$16,142	\$6,057
	Median	\$100,127	\$112,750	12.6%	\$121,612	\$123,634	1.7%		
2014-2015	Mean	\$111,971	\$132,825	18.6%	\$121,576	\$132,825	9.3%	\$20,854	\$11,249
	Median	\$103,625	\$118,076	13.9%	\$122,624	\$130,632	6.5%		
2015-2016	Mean	\$117,024	\$139,565	19.3%	\$127,591	\$139,565	9.4%	\$22,541	\$11,974
	Median	\$107,193	\$123,075	14.8%	\$129,967	\$136,475	5.0%		
<b>Assistant Professor</b>									
2011-2012	Mean	\$104,768	\$113,590	8.4%	\$109,870	\$113,590	3.4%	\$8,822	\$3,720
	Median	\$84,913	\$94,425	11.2%	\$106,917	\$110,934	3.8%		
2012-2013	Mean	\$104,802	\$121,832	16.3%	\$118,812	\$121,832	2.5%	\$17,030	\$3,020
	Median	\$86,398	\$97,732	13.1%	\$116,624	\$122,590	5.1%		
2013-2014	Mean	\$109,758	\$122,033	11.2%	\$117,788	\$122,033	3.6%	\$12,275	\$4,245
	Median	\$89,400	\$100,435	12.3%	\$115,358	\$118,212	2.5%		
2014-2015	Mean	\$112,695	\$124,649	10.6%	\$121,025	\$124,649	3.0%	\$11,954	\$3,624
	Median	\$92,716	\$103,128	11.2%	\$118,706	\$122,042	2.8%		
2015-2016	Mean	\$113,120	\$127,585	12.8%	\$123,750	\$127,585	3.1%	\$14,465	\$3,835
	Median	\$95,209	\$106,003	11.3%	\$120,728	\$124,284	2.9%		

NOTES: All salaries are converted to a nine-month base. Academic base salary increases pertain to all Penn standing faculty members with an appointment at the time of the fall census for both years. Faculty members on paid leave or unpaid leave are reported at their full salaries.

Excluded are all members of the Faculty of Perelman except basic scientists, all Clinician Educators from four schools (Dental Medicine, Veterinary Medicine, Nursing, and Social Policy & Practice), faculty members on phased retirement, and Deans of all Schools.

Female faculty members are weighted using male weights. Male weights are calculated as a ratio of male faculty in each school/area to the total number of male faculty at Penn. Percent difference is calculated as the difference between male and female salaries divided by the female salary. Negative percent differences occur when the female salary exceeds the male salary.

**Table 13**  
**Employer Contributions to Retirement Accounts and to Dependent Undergraduate Tuition at Penn and Ivy Plus Peer Group**

University	Maximum Employer Contribution to Retirement Accounts*	Dependent UG Tuition Benefit to Attend Home Institution#	Dependent UG Tuition Benefit to Attend Other Institution#
Penn	9%°	75% (\$34,761)	100% (up to \$18,222)
Brown	10%	22% (\$11,250)	100% (up to \$11,250)
Carnegie Mellon	8%	100% (\$51,196)	100% (up to \$30,718)
Columbia	9-11.2%†	100% (\$57,528)	50% (up to \$28,764)
Cornell	10%	50% (\$25,477)	30% (up to \$15,286)
Dartmouth	10%	0	0
Duke	None	75% (\$38,633)	100% (up to \$37,180)
Harvard	10%	0	0
Michigan	10%	0	0
MIT	10%	100% (48,140)	up to \$24,070
NYU	10%	90-100% (\$44,155-\$49,062)	up to \$6,030
Princeton	9.3-12.45%†	37% (\$16,770)	50% (up to \$16,770)
Stanford	10%	50% (\$23,666)	50% (up to \$23,666)
Chicago	8%	75% (\$38,248)	100% (up to \$38,248)
Yale	10-11.38%†	32% (\$15,700)	50% (up to \$15,700)
<b>Median Max Benefit (without Penn)</b>	10%	\$24,572	\$15,560

\*Data as of July 2016. Service minimums to qualify vary by institution. Combined contributions to 403(b) and 401(a) accounts for oldest age bracket; only salary up to \$265,000 is eligible. A portion requires employee contribution to qualify.

†Rate differs above and below Social Security Wage base of \$118,500.

°Penn highest age bracket is age 40 and over.

#Data as of July 2016. Conditions to qualify vary by institution. Some benefits include tuition only, others include fees. At Duke, only tuition above \$6,882 is eligible.