Preliminary Report of the Senate Faculty Salary Equity Committee

North Carolina Agricultural and Technical State University
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Dr. Michael Joseph Roberto, Committee Chair, Associate Professor of History
Dr. John P. Roop, Associate Professor of Mathematics
Dr. Gregory D. Meyerson, Associate Professor of English
Dr. Lyubov A. Kurkalova, Associate Professor of Economics

I. Mission, Purpose and Task

In the fall of 2012, Chancellor Harold L. Martin approved the request of the Faculty Senate to commence a study of salary equity among faculty at North Carolina A&T State University. The Chancellor's approval was affirmed in a meeting on January 15, 2013, between Faculty Senate President Brian C. Sims and Provost Winser E. Alexander. At that meeting, Provost Alexander indicated that most, if not all, of the relevant data was available from A&T administrators and the UNC General Administration. Provost Alexander recommended that the committee gather data on salary ranges across departments/colleges and across our peer institutions. He also informed Dr. Sims that he preferred for the Senate committee to commence the study and provide recommendations to the administration that would move the administration and the faculty forward in a common effort. According to Dr. Sims, the Provost's exact words were: "the Senate should come up with something that helps the administration solve the problem."

Accordingly, the committee drafted a statement of purpose that was subsequently approved by the full Senate on January 22, 2013. It reads:

> This faculty committee will examine disparities in faculty compensation that prevail at N.C. A&T State University for the purpose of advising university administrators in developing guidelines and procedures aimed at achieving greater equity in faculty pay. To this end, the committee will study existing data and other types of evidence necessary to create a comprehensive report on disparities and the reasons why they exist. As a Faculty Senate committee charged with addressing these issues, we will present our findings to the full Senate and recommend, upon approval by the Senate, that our study become the primary basis for representing the entire faculty on the matter of salary equity throughout N.C. A&T State University.

Since February, the committee has pursued four distinct yet related areas of inquiry: (1) to analyze NCA&T faculty salary data provided by Dr. Scott Jenkins, Director of Institutional Research, and similar types of data for peer institutions; (2) to solicit NCA&T faculty to provide specific cases of salary inequity (3) to determine how existing policies or lack thereof contribute to the perpetuation of salary inequities across the campus and within its divisions, and (4) to look for examples of other universities that have addressed the problem. The committee moved forward on the basis of bi-monthly meetings, which established areas of work for several members.

To date, our findings can be summarized as follows:

- Evidence of glaring and apparently longstanding inequities in salaries across the university, generally along three main lines: (1) interdivisional, between colleges and schools (Engineering, Technology, Agriculture and Environmental Science, Nursing, Business and Economics, and Education) and Arts and Sciences; (2) Intradivisional, within each division and (3) Intradepartmental, among faculty within departments.
- Absence of guiding principles and procedures for determining compensation in all three areas; in short, no evidence of a comprehensive university policy or policies operating at any level of NCA&T administration.
- Lack of accountability for salary decisions by administrators at all levels.
- Evidence of growing frustration by faculty with all the above.
- Faculty who believe they have no redress to decisions and fear reprisals.

II. Quantitative Summary

The quantitative portion of the salary equity study evaluates inequity on multiple levels, both within the university and in comparison with the two universities in the UNC system with the same Carnegie classification – East Carolina University (ECU) and the University of North Carolina at Charlotte (UNCC). In the following sections we explain our approach, detail the data that we used for the study, and then present the results of our analysis.

Approach: How do we define equity and how can equity or inequity be ascertained from quantitative analysis? The general idea of equity in faculty pay is that pay needs to be merit - based. A merit-based pay scheme would have two important attributes: equal quantity of work of equal quality should result in equal salaries, and higher quality and/or higher quantity of work should result in higher pay. Any deviations from this scheme represent inequity.

Metrics of faculty performance vary significantly from one discipline to another, but within any discipline, merit-based pay schemes are expected to reveal the following quantitative relationships:
(1) other factors being equal, salaries at one university are equal to those at another university;
(2) other factors being equal, salaries of tenure-track and tenured faculty are higher than those of non-tenure-track faculty;
(3) other factors being equal, salaries of full professors are higher than those of associate professors;
(4) other factors being equal, salaries of associate professors are higher than those of assistant professors;
(5) other factors being equal, salaries of more experienced faculty are higher than those of less experienced faculty.

To test whether the 5 listed relationships are true for the NCA&T faculty, we first compare the college-average salaries between NCA&T and two comparable UNC system universities, ECU and UNCC. In comparing university salaries for all three, we account for college affiliation and academic rank.

We then proceed to a statistical analysis of faculty salaries at NCA&T in which we use the data on individual faculty salaries and faculty characteristics to fit a multiple linear regression model that relates the salary to the faculty characteristics. The function of this regression is twofold: to evaluate how the observed variation in faculty salaries could be explained by faculty characteristics and to summarize any differences that cannot be explained by the model between academic divisions, within divisions, and within departments.

In accord with the goal of the analysis, the discussion below focuses on two types of results from the regression analysis. One focuses on the estimated coefficients of the model, and the other – on model residuals, i.e., the difference between the actual salary and the salary predicted by the model. If the difference is positive, that means that the salary is found to be higher than that predicted by the factors, i.e., the salary observed is higher than that expected, given the faculty's discipline, rank, tenure status, and experience. The opposite is true for negative residuals.

Data: The analysis covers all full-time faculty employed by NCA&T in 2012. To restrict our analysis to the full-time faculty only, the individuals below 0.8 FTE as reported by institutional research were excluded from the study as well as adjunct, visiting, retired and JSNN faculty. Dr. Scott Jenkins, Director of Institutional Research, provided the data on individual, "calendar-year" (fiscal year) NCA&T faculty salaries derived from a 2012-2013 report whose parameters include rank, tenure status, college affiliation, and gender. Institutional research did not provide information on whether a particular faculty member was a 9-month or 12-month employee. In addition, several data indicators provided such as terminal degree or highest degree earned were discarded because of numerous errors. It is unknown whether the data reported from academic divisions is completely accurate, whether errors made in reporting are unbiased or whether the errors are distributed randomly in a biased direction.

Data on ECU and UNCC faculty come from factbooks freely available on each institution's web page. As the 2012-2013 salary data were not available for these universities, we used that for 2011-2012, the latest year available.

The data used in the analysis include the following variables:
Salary – 9-month salary of an individual faculty member in academic year 2012-13 in $.
FP – indicator variable taking on the value of 1 if the faculty is full professor, and zero otherwise;
ASCP - indicator variable taking on the value of 1 if the faculty is associate professor, and zero otherwise;
ASSP - indicator variable taking on the value of 1 if the faculty is assistant professor, and zero otherwise;
TTT – indicator variable taking on the value of 1 if the faculty is tenured or tenure track, and zero otherwise;
T – indicator variable taking on the value of 1 if the faculty is tenured, and zero otherwise;
YS - years of service with the university;
YR - years at current rank;
MALE – indicator variable taking on the value of 1 if the faculty is male, and zero otherwise;
ASIAN - indicator variable taking on the value of 1 if the faculty is "Asian," and zero otherwise;

BLACK - indicator variable taking on the value of 1 if the faculty is "African-American," and zero otherwise;
WHITE - indicator variable taking on the value of 1 if the faculty is "White," and zero otherwise;
HISPANIC - indicator variable taking on the value of 1 if the faculty is "Hispanic," and zero otherwise;
CAS – indicator variable taking on the value of 1 if the faculty is in the College of Arts and Sciences, and zero otherwise;
CE - indicator variable taking on the value of 1 if the faculty is in the College of Engineering, and zero otherwise;
ST – indicator variable taking on the value of 1 if the faculty is in the School of Technology and zero otherwise;
SE – indicator variable taking on the value of 1 if the faculty is in the School of Education and zero otherwise;
SB - indicator variable taking on the value of 1 if the faculty is in the School of Business and Economics, and zero otherwise;
SN - indicator variable taking on the value of 1 if the faculty is in the School of Nursing, and zero otherwise;
SA – indicator variable taking on the value of 1 if the faculty is in the School of Agriculture and Environmental Science, and zero otherwise.

As there are faculty in the university who are considered full-time but either do not possess an academic rank of assistant, associate or full professor or who have no college affiliation, the reference case (the constant) corresponds to a faculty member who has no academic rank (e.g. instructor) with no college affiliation (e.g. Department of Distance Education) who is not tenured or on tenure track. In addition, the way we coded the data uses a woman of American Indian or unknown descent as the reference case.

Results and discussion

1. Interdivisional Inequity

As a starting point, we can compare division-average salaries at NCA&T to interdivisional salaries at ECU and UNCC, by faculty rank. Results are summarized in Table I. The data from UNC and ECU are one year behind the data utilized from NCA&T. Thus, one can expect that salaries have been raised at ECU and UNCC. Notice that ECU and UNCC, unlike NCA&T, do not have a single college of arts and sciences. Rather arts and sciences are divided into two divisions. In addition, the school of education, one unit at NCA&T, are two units at ECU. Moreover, there is no School of Agriculture, Nursing, or Technology at UNCC and human ecology from ECU was used as a proxy for agriculture.

Salaries in arts and sciences, business, and engineering are generally higher at UNCC. Full professor salaries are higher in arts and sciences and technology at ECU. As a full study cannot be readily accessed at either of the peer institutions, there is no way to account for academic merit, workload, or other factors such as tuition, endowment or state-funded FTE.

Two multiple linear regression models were fit using the NCA&T data; the model coefficients are given in Tables II and III, along with the corresponding t-scores and p-values. Most estimated interdivisional differences in salaries are not statistically significant as evidenced by low t-values and the correspondingly high p-values. The estimates are conventionally considered statistically significant if the p-value is less than 0.05. In table II, the only variables that have such a low p-value are FP, ASCP, SB, and the constant. In Table VII, the only variables that have such a low p-value are FP, ASCP, MALE, SB, and the constant. These findings suggest that the rank of faculty – either full professorship or associate professorship, and being in the school of business and economics affects faculty salaries positively.

Divisions with negative coefficients are Arts and Sciences (-8437.50) and the School of Education (-525.70). The negative coefficients mean that holding other factors, such as rank, tenure status, and years of experience constant, faculty in the College of Arts and Sciences are expected to receive salaries on average $8,438 less than the faculty in other divisions, about $36,500 less than faculty in the School of Business and Economics and about $19,000 less than faculty in the College of Engineering. Divisions with positive coefficients are Business and Economics (28176.40), Engineering (10607.70), Agriculture and Environmental Science (3627.70), Nursing (2005.90), and Technology (147.7). The negative or positive coefficients may represent the normally occurring differences between disciplines. For example, it is well known that economists' salaries are in general lower than those of engineering faculty. However, if the difference in the engineering and economics faculty salaries at NCA&T is significantly higher or lower than that in universities with comparable economics and engineering departments or colleges, then one may argue that inequity is present at NCA&T (we leave aside for now the knotty question of whether "normally occurring differences" are inequitable).

The correlation between actual salaries and salaries found using the linear model was 0.78. It is important to note that if gender and race are included in the model, the correlation increased to 0.80. The model which incorporates race and gender is summarized in Table III. This model suggests that other factors being held constant, male faculty earn $3890.6 more than female faculty. However, given the noisy data and omission of many important explanatory variables from the model, further analysis is needed. The model's other coefficients are as follows: Asian (2777.7), White (2187.6), Black (7994.5), and Hispanic (-8316.3). A model which includes gender preserves the same correlation 0.78 as the original model. It is clear that the inequity on the basis of gender can be accounted for by differences in academic rank and college affiliation. Race does explain some of the variation in faculty salaries, but the p-values in Table III show that none of the race variables is statistically significant.

In addition if other factors were included such as opportunity cost or whether a department gives graduate degrees, correlation drops to 0.76. This is because of the high number of graduate programs in Arts and Sciences and Engineering, the fact that some of the higher paid departments do not offer graduate programs, and that the model is heavily skewed with massive positive residuals in the School of Business and Economics. In the sequel we only utilize the model summarized in Table II.

2. Intradivisional inequity

In the second part of the study, we take for granted or hold constant the differences in salary between academic divisions and look instead more closely at the differences between academic departments within each division. It is clear that colleges/schools may be funded at different levels, but it is up to each dean in each division to assign starting salaries and salary increases in coordination with the department chair. Intradivision inequity has no meaning in the School of Nursing, as it is a division with a single department.

Results are summarized in Table IV. In addition to the correlation coefficient and sum of residuals for each department and division, we report the average full professor salary. We would note that, as a means of comparing academic disciplines, data exist relating percent salary discrepancy by academic discipline above or below English nationally. The far right column of Table IV gives salary averages by discipline as compared by percentage for full professors nationally when compared to an English faculty member, and can be found at http://chronicle.com/article/Faculty-Salaries-Vary-by/127073 .

It is clear that over time, the traditional liberal arts have been passed over for salary increases in favor of more specialized disciplines. This may be due to the perception that graduates outside the liberal arts are more directly marketable to private industry.

In the penultimate column of Table IV, we see that the NCA&T average salaries indicate an even wider disparity between disciplines such as engineering and business/economics and others. In addition, it is interesting to notice that nationally professors in fields such as education are usually paid lower than English professors but this is not the case in the UNC system universities examined here.

Tables V-VII enumerate departments with the lowest correlation between actual and model salaries, which is to say, departments with highest and lowest summed residuals. Low correlations indicate inequity. Some divisions may have a rationale for such inequity, but it is clear that, within the College of Arts and Sciences, there does not exist any rationale why Biology, Chemistry and JOMC receive more on average (high residuals) and English, History, Mathematics and Visual/Performing Arts receive less (low residuals).

3. Intradepartmental inequity

In addition to the above-discussed notions of macro-level inequity, we must also examine inequity on an individual basis. The full model spreadsheet with model residuals sorted by academic department is available and shows that within many departments severe inequity exists, including situations where junior faculty are paid $20,000 more than senior faculty in the same department and where inversion and compression are severe. (We note that the terms inversion and compression shall refer to circumstances where individual base salary compensation for senior faculty does not keep pace with that of newly hired or junior faculty. Compression is the narrowing of salary differentials over time between junior and senior faculty within a unit resulting in a relatively small individual base salary difference between faculty regardless of skills, rank or experience. Inversion is an extreme form of compression that refers

to a situation where a newer faculty is hired at an individual base salary that exceeds that of a senior faculty at the same or higher rank within the unit.)

It is clear from looking through the spreadsheet that a large percentage of faculty have massive positive and negative residuals. We conjecture that salaries are not assigned or influenced by any university-wide model. To indicate this we have provided lower 99% confidence interval salary statistics as well as a modified residual. It is clear that some variation within an individual department may exist, but the question is whether, in a model with already noisy data, a salary that is more than $10,000 outside the 99% confidence interval is proof of individual inequity.

Getting more precisely at individual favoritism requires not just quantitative data but qualitative data and so we have begun to collect case studies and will hazard some very tentative generalizations based on these examples (see Part III).

III. Specific Cases of Salary Inequity

Since February, the committee has asked NCA&T faculty from across the university to provide specific examples of salary inequities based on their own experiences. We understand that this part of the study is quite tentative at best, since much more investigation would have to occur. For example, the committee received information about disparities from a member of the School of Agriculture and Environmental Sciences and a member from the School of Education. The committee saw existing problems but could not draw definitive conclusions at this time.

At the same time, the committee recognizes a great deal of reluctance to come forward given concern for reprisals from department chairs or deans. Nevertheless, three faculty members of different departments have come forward to tell their stories. The committee determined that all three cases are elaborations of the inequities we have found in our analysis of the salary data as stated in the previous section. Accordingly, we have determined they are neither grievances nor gripes based on arbitrary subjective factors.

Case 1: A tenured Associate Professor in the Department of Sociology/Social Work since 2012 served as a PI that year in a grant that was characterized as "the largest non-governmental grant A&T received in years," and "a rare bright spot in 2011-2012 academic year" by administrators. This faculty member also served the department's nationally-ranked graduate program, which was reaffirmed in 2012 with high praise.

Nevertheless, even after a small customary salary increase with promotion to an Associate Professor, at $55,092, this faculty member remains the lowest paid among all full-time faculty in the department. Furthermore, the salary is substantially lower than (1) all tenure-track assistant professors; (2) a faculty member whose tenure application was unsuccessful and is on annual contract, and (3) the nine-month equivalent salary of a new 12-month Assistant Professor with non-terminal degree.

According to the three-year-old 2010 salary information provided by the Office of Planning, Assessment and Research, the average salary among Associate Professors in the College of Arts and Sciences was $65,256, the lowest among NCA&T colleges and schools, but $10,000 more

than this person's current salary. Also, the same report shows that this faculty member's salary is little more than half of the average salary reported for Associate Professors in the School of Business and Economics ($103,170)!

In spite of these inequities, this faculty member received no response to his/her official request for salary review made in September, which prompted this conclusion: "I strongly believe that I have been unfairly compensated for my services and contributions to the University, and yet like many colleagues in similar situations, my request has been met only by indifference and inaction."

Case 2: An assistant professor in the Department of Mathematics who was hired in 2007 already had three years of post doc experience in NRC-Canada (one year) and Duke University (two years), two years of assistant professorship in another state university in Texas, and 13 journal papers. From the start, the faculty member recognized that the "package" or starting salary did not match his/her credentials; for example it was $2000 lower that the position paid in Texas. According to a statement provided to the committee, this faculty member offered the following statement:

> In the 5 years at A&T, I really achieved a lot and established myself in applied mathematics with applications in aerospace engineering, math biology and meteorology. I have contributed much to our department, college and university. See the details of my achievements at A&T at the end of this statement. I received constant appraisals from my administrators and my colleagues. Naturally, I thought my salary should not be too bad. However, my achievements and contributions are not at all reflected in my salary or my rank in the professorship. It is so disturbing and discouraging: I am the LOWEST paid assistant professor in our department (yes, lower than those hired at the same time and after). In fact, my salary is the fourth lowest among all the assistant professors in the entire university. In contrast, my publication number (24) is the second in our department.

Currently under review for tenure and promotion to associate professor, this faculty member was rated (by the Mathematics Department RPT Committee) as excellent in all three areas (teaching, service and research) and "one of the highly engaged and most collaborative faculty members in the department." The knowledge and dedication of this faculty member is reflected in annual student evaluations (4.0-4.8) and peer evaluations (4.5-5.0).

This faculty member is unquestionably committed to student advisement. He/she advises 10 active math majors and is involved in various student oriented programs (NASA, Talent-21, NSF-REU). In addition to the normal committees (faculty development, college colloquium series), he/she established the department's math colloquium and initiated and promoted a CEP (Collaborative Education Program) with a Chinese university. Supported by the NSF of China, the CEP may send up to 40 students per year to A&T for the programs in mechanical and electrical engineering.

As for scholarship, this faculty member has published 24 peer-reviewed journal papers and 9 peer-reviewed conference proceeding papers, among which 11 were published since arriving at A&T. This faculty member also serves as a regular reviewer for several noted professional journals in applied mathematics and engineering. "I sat on graduate committees in IE, EES/Physics, and Math. Currently I am advising four graduate students for their thesis/graduate projects and two math majors for REU. Recently, my research proposal (Co-PI with Lin from Physics/EES) to AGS-NSF ($400K for three years) has been approved (in emails) by the program director with starting date in July."

For all this, the faculty member received the minimum percentage raise 1.2% in last year's merit increase with the lowest dollar amount $629 in the Mathematics Department.

Case 3: A tenured Associate Professor in the Department of English recently sent a letter of complaint to the departmental chair, citing "evidence of improper administrative behavior" with respect to salary and related issues. The letter also informed the chair that copies were forwarded to the Dean of the College of Arts & Sciences and this committee.
The letter was prompted by information given to the faculty member, specifically, a list of English Department salaries and recent raises for the current academic year. Since there had been no raises in several years before the state-issued raise to all faculty of 1.2 %, the faculty member had paid little attention to the matter of raises, assuming there would be none for merit. As the faculty member explained to the chair:

> I have been at this university since 2003 and have always received the highest merit raise offered, which was not, in fact, much since it was based on percentages. When I saw the salaries and raises, I was not pleased, for several reasons. Every year I have been here, save last year, we have had end of year meetings where chairs and faculty members discussed their "contracts." These contracts were the basis for any raises we might get, if any raises were forthcoming. Without contract (the duty agreement), and without meeting, there is simply no sound basis for assigning raises or evaluating performance.

Consequently, the faculty member expressed unhappiness at seeing a wide range of salary increases, from $500 at minimum to $3000 at maximum, since "the basis for such raises was not clear, beyond a boost given to the associate chair. Increased service responsibilities are part of our contract and are accommodated by a course reduction, not a raise."

The faculty member also pointed out that "a sizeable number of non-tenure track people got larger dollar amount raises" than he/she and other senior faculty, "even though, by the standards of my contract, I had a very good year." The faculty member went on to cite publication of a long, co-authored article in the online journal *Cultural Logic* that was subsequently reprinted in the print journal *Works and Days*. In addition, another co-authored article published in the highly regarded print journal *Science & Society* was included in an anthology of the best articles of the decade in that journal published by the Guilford Press. Finally, the faculty member pointed out that three of his lengthy journal publications (including the two co-authored works cited here) were used in a graduate class (Fall, 2012) on

Contemporary Marxism in the highly regarded Cultural Studies Ph.D. program at George Mason University. As the faculty member noted:

> My work was taught side by side with cultural studies superstars like Slavoj Zizek and Fredric Jameson. All of this information I made public. One would think such achievement might merit at least a penny. It merited nothing. It merited less than that given to people without Ph.Ds, much less 30 years of teaching experience (7 at Ph.D. level) and 3 books worth of peer reviewed articles and two manuscripts I am currently working on.

IV. Findings and Recommendations

The committee recognizes the limitations of this report. Further analysis of the data used here, as well as sources of data yet to be tapped, will shape our ongoing work in the Fall 2013 semester. The committee has found incontrovertible evidence of inequalities on three levels: between schools and colleges, within schools and colleges, and within departments. It has also uncovered specific examples of salary inequity, apparently the result of subjective decision-making.

This report raises questions about the causes of salary inequities at NCA&T. Are there guidelines, processes and procedures across the university that would ensure salary equity at NCA&T? If so, are departmental heads and division administrators accountable for their decisions based on these criteria? Do salary inequities continue to exist because they are not redressed by faculty, who feel powerless to address them because they fear reprisals?

All these matters must be studied more closely and not by this committee alone. Therefore, the committee makes the following recommendations:

- All our findings be verified by the Office of Institutional Research and reported to the Faculty Senate at its first meeting of the Fall 2013 semester.
- At that meeting, the Provost should provide an assessment to the Faculty Senate of guidelines, processes and procedures that are currently in place, if any, and explain why current inequities exist.
- Based on these reports, The Faculty Senate Salary Equity Committee should assist the Provost in creating a comprehensive policy regarding compensation that will address existing inequities on all levels and ensure equity as a guiding principle of all future compensatory decisions
- The committee recommends that we proceed in part by studying academic departments at other institutions that possess the same Carnegie classification and award the same highest degree.

In closing, the committee has sought to determine how other universities have corrected salary inequities and ensure equity as a guiding principle in subsequent distribution of annual raises. We established contact with faculty at Louisiana Scholars' College, Northwestern State University in Natchitoches, Louisiana. Here is what we were told:

A plan was developed to address salary inequity. Similar to NCA&T, a significant number of individual faculty were earning “very small” salaries, i.e. far below recognized peers. The administration used variations of the following plan that distributes any monies available for faculty salary increases according to four equal components:

(1) a flat percentage of last year's salary, shared equally by all faculty. (This most benefited those with the highest salaries.)
(2) a flat dollar amount per full-time-equivalent (FTE); the same amount was given to all faculty, without regard to discipline. (This most benefited those earning the lowest salaries.)
(3) a merit component divided up within each department based on a percentage of the department's total salaries. Merit raises were assigned by the chair and a departmental committee and were divided via a point system. For instance, if the committee wanted to emphasize a highest merit rating, the point system might be "merit" = 1 , "high merit" = 2, and "highest merit" = 4. The points were totaled and the funds divided proportionally within the department. Thus, if all received "highest merit" ratings, everyone would get an equal portion of the raise; and so on.
(4) an "equity/discretionary" component that is used for faculty members whose salaries fall below the average salary by rank for a comparable department at a comparable institution. The suggested amount was proportional to the distance between the average and the individual's salary.

Components 2 and 4 have the potential to decrease salary compression and 1, 2, and 4 would not affect a salary's rank order. The only way for a faculty member to move above another is through the merit component. The administration held the line and did not give raises outside the plan. Since no one group of faculty members benefited a great deal more than others, there were no grievances as there had been in the past.

V. Tables

Division	Rank	A&T	ECU (2011)	UNCC (2011)
CAS	FP	82,048.79	87,644/76,468	97,411/101,544
CAS	ASCP	66,569.75	66,815/61,749	71,437/68,982
CAS	ASSP	60,976.87	60,559/53,827	59,144/60,078
CE	FP	107,142.00	N/A	129,515
CE	ASCP	84,978.86	N/A	92,000
CE	ASSP	74,562.14	N/A	81,779
ST	FP	101,007.63	110,000	N/A
ST	ASCP	70,330.42	83,106	N/A
ST	ASSP	66,221.62	73,732	N/A
SE	FP	94,913.11	95,814/90,917	96,428
SE	ASCP	74,817.00	75,415/69,648	68,652
SE	ASSP	63,063.00	62,868/61,157	61,461
SB	FP	122,817.50	118,148	143,807
SB	ASCP	104,468.18	105,584	127,393
SB	ASSP	91,587.25	106,106	123,745
SN	FP	111,320.00	106,790	N/A
SN	ASCP	69,336.50	77,182	N/A
SN	ASSP	62,915.18	66,840	N/A
SA	FP	96,314.53	97,144	N/A
SA	ASCP	81,413.36	72,825	N/A
SA	ASSP	67,930.77	59,625	N/A

Table I. Comparison of average salaries between A & T and ECU and UNCC.

	Coefficient	t-value	p-value
FP	31182.1	4.56	$6.6x10^{-6}$
ASCP	11895.5	1.80	0.073
ASSP	6944.7	1.14	0.26
TTT	4912.0	0.82	0.41
T	4624.1	1.55	0.12
YS	-124.7	-0.97	0.33
YR	244.2	1.53	0.13
CAS	-8437.5	-0.97	0.33
CE	10607.7	1.20	0.23
ST	147.7	0.02	0.99
SE	-525.7	-0.06	0.95
SB	28176.4	3.19	0.0015
SN	2005.9	0.20	0.84
SA	3627.7	0.41	0.68
Const.	53909.87	6.12	$2.1x10^{-9}$

Table II. Coefficients, t and p values from the regression.

	Coefficient	t-value	p-value
FP	30768.6	4.58	$6.6x10^{-6}$
ASCP	11036.4	1.70	0.09
ASSP	6491.7	1.08	0.28
TTT	5413.2	0.93	0.35
T	4287.3	1.46	0.15
YS	-140.0	-1.10	0.27
YR	215.5	1.36	0.17
Sex	3890.6	2.47	0.014
Asian	2777.7	0.44	0.66
White	2187.6	0.35	0.72
Black	7994.5	1.31	0.19
Hispanic	-8316.3	-0.97	0.33
CAS	-8635.7	-1.01	0.31
CE	10590.6	1.21	0.22
ST	-1388.3	-0.16	0.87
SE	-559.5	-0.06	0.95
SB	28556.3	3.29	0.0011
SN	2111.1	0.22	0.82
SA	2813.0	0.32	0.75
Const.	47307.4	4.45	$1.1x10^{-5}$

Table III. Coefficients, t and p values from the regression which included gender and race.

Department	**n**	**R**	**S of Residuals**	**$\bar{x}$ Full Prof.**	**A & T**	**Chronicle**
Biology	16	0.56	38,778.90	80,802.00	8.75%	18.9%
Chemistry	12	0.44	45,000.80	90,958.00	22.4%	12.9%
English	31	0.83	-66,073.59	74,302.00	N/A	N/A
History	12	0.56	-70,258.13	71,460.00	-3.82%	16.8%
Journalism & Mass Communications	9	0.35	59,969.60	80,885.67	8.86%	-3.2%
Liberal Studies	9	0.57	2,423.79	73,766.00	-0.72%	N/A
Mathematics	24	0.81	-64,836.16	89,483.67	20.4%	7.2%
Ph.D. Energy Environmental Studies	2	1.00	64,900.41	N/A	N/A	N/A
Physics	11	0.85	6,867.89	88,535.20	19.2%	12.9%
Political Science & Criminal Justice	3	-0.19	7,181.14	N/A	N/A	16.8%
Psychology	8	0.51	7,762.15	N/A	N/A	16.8%
Sociology & Social Work	13	0.46	10,427.31	80,200.00	7.94%	16.8%
Visual & Performing Arts	15	0.71	-42,158.06	91,469.00	23.1%	-12.4%
College Total	**165**	**0.63**	**-13.95**	**82,048.79**	**10.4%**	**N/A**
Chemical, Biological & Bioengineering	12	0.59	-55,504.84	98,041.57	32%	25.2%
Civil, Architectural, Agricultural and Environmental Engineering	12	0.73	-22,649.97	102,510.75	38%	25.2%
Computational Sciences & Engineering Ph.D.	4	1.00	26,800.27	132,185.00	77.9%	28.2%
Computer Science	6	0.73	2335.48	110,800.33	49.1%	28.2%
Electrical & Computer Engineering	14	0.57	-3,350.68	106,433.43	43.2%	25.2%
Industrial & Systems Engineering	12	0.68	27,312.09	108,696.33	46.3%	25.2%
Mechanical & Chemical Engineering	16	0.77	25,050.86	113,790.14	53.1%	25.2%
College Total		**0.68**	**-6.79**	**107,142.00**	**44.2%**	**25.2%**
Construction Management & Occupational Safety & Health	9	0.91	5,841.58	110,653.00	43.2%	N/A
Electronics, Computer & Information Technology	11	0.76	1,630.93	104,667.00	40.9%	N/A
Graphic Communication Systems Technology Studies	8	0.97	-51,593.71	84,658.00	13.9%	N/A
Manufacturing Systems	6	0.91	44,118.95	104,052.5	40%	N/A
School Total	**35**	**0.81**	**-2.25**	**101,007.63**	**36%**	**N/A**
Department	**n**	**R**	**S of Residuals**	**$\bar{x}$ Full Prof.**	**A & T**	**Chronicle**

Curriculum & Instruction	20	0.46	-14,520.06	85,753.75	15.4%	-4.3%
Human Development & Services	22	0.64	25,270.14	109,477.00	47.3%	N/A
Human Performance & Leisure Studies	12	0.39	-75,982.12	71,452.00	-3.84%	N/A
Leadership Studies	4	0.61	65,227.98	111,320.00	49.8%	N/A
School Total	**58**	**0.55**	**-4.06**	**94,913.11**	**27.7%**	**-4.3%**
Accounting	11	0.53	138,150.04	122,424.00	64.8%	50.9%
Economics & Transportation Logistics	19	0.66	-113,933.30	122,860.75	65.4%	41.2%
Business Education	7	0.87	-124,671.93	135,645.00	82.6%	-4.3%
Management	26	0.60	981.09	117,738.00	58.5%	50.9%
Marketing, Transportation, Supply Chain	7	0.38	99,468.24	135,608.00	82.5%	50.9%
School Total	**60**	**0.51**	**-5.86**	**122,817.50**	**65.3%**	**50.9%**
Agribusiness, Applied Economics & Agricultural Education	9	0.41	72,873.54	105,116.25	41.5%	N/A
Agricultural Extension	1	1.00	281.70	97,774.00	31.6%	N/A
Animal Science	9	0.53	-24,843.02	85,048.50	14.5%	N/A
Family & Consumer Sciences	12	0.66	-11,319.04	99,493.00	33.9%	N/A
Natural Resources & Environmental Design	13	0.67	-36,997.51	93,753.13	26.2%	N/A
School Total	**33**	**0.60**	**-4.33**	**96,314.53**	**29.6%**	**N/A**
Nursing	19	0.85	-0.80	111,320.00	49.8%	18.9%
Distance Education	3	0.96	-0.07	N/A	N/A	N/A

Table IV. Departmental comparison based on correlation, summed residuals, average full-professor salary and percentage discrepancy from baseline English professor salary.

Ten Departments with Lowest Correlation Coefficients (most intradepartment deviation)
1. Political Science and Criminal Justice
2. Journalism and Mass Communications
3. Marketing, Transportation, Supply Chain
4. Human Performance and Leisure Studies
5. Agribusiness, Applied Economics and Agricultural Education
6. Chemistry
7. Curriculum and Instruction
8. Sociology and Social Work
9. Psychology
10. Accounting/Animal Science (tie)

Table V. Ten departments with least correlation to model salaries.

Ten Most Overpaid Departments
1. Accounting
2. Marketing, Transportation, Supply Chain
3. Agribusiness, Applied Economics and Agricultural Education
4. Leadership Studies
5. Ph.D. Energy Environmental Studies
6. Journalism and Mass Communications
7. Chemistry
8. Manufacturing Systems
9. Biology
10. Industrial and Systems Engineering

Table VI. Ten departments with highest summed residuals.

Ten Most Underpaid Departments
1. Business Education
2. Economics and Transportation Logistics
3. Human Performance and Leisure Studies
4. History
5. English
6. Mathematics
7. Chemical, Biological and Bioengineering
8. Graphic Communication Systems Technology Studies
9. Visual and Performing Arts
10. Natural Resources and Environmental Design

Table VII. Ten departments with highest negative summed residuals.

Total Salary	FP	ASCP	ASSP	TTT	T	YS	YR	CAS	CE	ST	SE	SB	SN	SA	Model Salary	Residual	99ModelLI	Mresid	Race	Sex
72573.00	0	1	0	1	1	8	0	0	0	0	0	1	0	0	102523.44	-29950.44	96840.725	-24267.73	Black	0
77697.00	1	0	0	1	1	23	23	0	1	0	0	0	0	0	107984.67	-30287.67	100995.41	-23298.41	White	1
65000.00	0	0	1	1	0	0	0	0	0	0	0	1	0	0	93942.85	-28942.85	88027.759	-23027.76	White	0
77469.00	0	1	0	1	1	23	18	0	0	0	0	1	0	0	105048.81	-27579.81	99648.878	-22179.88	Black	1
55558.00	1	0	0	1	1	22	1	1	0	0	0	0	0	0	83691.97	-28133.97	77359.499	-21801.50	White	1
32760.00	0	0	1	1	1	37	24	1	0	0	0	0	0	0	63200.83	-30440.83	54495.765	-21735.76	White	0
94581.00	1	0	0	1	1	12	0	0	0	0	0	1	0	0	121308.35	-26727.35	114750.95	-20169.95	White	1
66333.00	1	0	0	1	1	13	0	0	0	0	1	0	0	0	92481.66	-26148.66	85888.935	-19555.93	Asian	0
62028.00	0	1	0	1	1	34	30	0	1	0	0	0	0	0	89039.04	-27011.04	81320.842	-19292.84	White	1
79662.00	0	1	0	1	1	23	11	0	0	0	0	1	0	0	103339.48	-23677.48	97999.803	-18337.80	Black	0
76502.00	1	0	0	1	1	24	21	0	0	0	0	0	0	1	100391.68	-23889.68	93088.083	-16586.08	White	1
76654.00	1	0	0	1	1	23	23	0	0	0	0	0	0	1	101004.73	-24350.73	93160.458	-16506.46	Black	1
54648.00	0	0	1	1	0	6	4	0	1	0	0	0	0	0	76602.91	-21954.91	71151.835	-16503.83	White	1
63974.00	1	0	0	1	1	17	5	1	0	0	0	0	0	0	85292.08	-21318.08	80356.918	-16382.92	White	1
64955.00	1	0	0	1	1	23	9	1	0	0	0	0	0	0	85520.82	-20565.82	80595.474	-15640.47	Black	0
84365.00	1	0	0	1	1	18	6	0	1	0	0	0	0	0	104456.79	-20091.79	99246.653	-14881.65	Asian	1
71452.00	1	0	0	1	1	20	2	0	0	0	1	0	0	0	92097.35	-20645.35	85288.585	-13836.58	Black	1
85923.00	1	0	0	1	1	12	4	0	1	0	0	0	0	0	104716.43	-18793.43	99325.432	-13402.43	White	1
85146.00	0	1	0	1	1	4	4	0	0	0	0	1	0	0	103998.88	-18852.88	98354.932	-13208.93	Hispanic	1
85987.00	0	1	0	1	1	8	8	0	0	0	0	1	0	0	104476.96	-18489.96	99097.672	-13110.67	White	1
87778.00	1	0	0	1	1	14	14	0	1	0	0	0	0	0	106908.99	-19130.99	100733.23	-12955.23	Hispanic	1
67273.00	1	0	0	1	1	17	4	1	0	0	0	0	0	0	85047.89	-17774.89	79990.525	-12717.52	White	1
69667.00	0	1	0	1	1	22	20	0	1	0	0	0	0	0	88093.18	-18426.18	81999.262	-12332.26	Black	1
69784.00	1	0	0	1	1	14	14	1	0	0	0	0	0	0	87863.8	-18079.80	82016.923	-12232.92	Black	1
87618.00	0	1	0	1	1	23	19	0	0	0	0	1	0	0	105293	-17675.00	99759.299	-12141.30	White	1
87090.00	0	1	0	1	1	20	13	0	0	0	0	1	0	0	104201.87	-17111.87	99184.115	-12094.11	Asian	1
88179.00	0	1	0	1	1	24	24	0	0	0	0	1	0	0	106389.28	-18210.28	99919.518	-11740.52	Black	1
74837.00	1	0	0	1	1	6	0	0	0	0	1	0	0	0	93354.35	-18517.35	86544.192	-11707.19	Black	0
77546.00	1	0	0	1	1	19	2	0	0	0	0	0	0	1	96375.42	-18829.42	89250.025	-11704.02	White	0
74764.00	1	0	0	1	1	16	2	0	0	0	1	0	0	0	92596.03	-17832.03	86107.049	-11343.05	White	0

Table VIII. Thirty faculty with highest modified residuals, department, race and gender.