

Compression and Inversion Report

UFF-FGCU Proposal

PART I: FROM THE COMPRESSION/INVERSION TEAM

Contract Wording

23.8 Compression and Inversion Study. Recognizing the 2006 market study and salary adjustment of base salaries, the parties agree to develop a compression and inversion process beginning by October 1, 2008 and complete the study by February 1, 2009 to inform the negotiation beginning February 2009 for the contract year 2009-2010.

Strategic Impact

Goals of a compensation system: to attract, motivate, and retain qualified faculty to meet the University's goals. Having equitable salaries is a major step toward hiring and retaining an excellent faculty to implement FGCU's mission—a goal that is of vital importance to us all.

Concerns Expressed by Faculty

- **Compression.** Faculty believe that in many colleges there is significant salary compression: little difference between salaries of senior, higher ranking faculty with years of service and good performance and the salaries of more junior, lower ranking faculty more recently hired.
- **Inversion.** Faculty believe that in some colleges there is significant salary inversion: the salaries of current faculty with more years of service and good performance are much lower than the salaries of more recently hired, often junior faculty.

Actions

Representatives from faculty and administration met during fall 2008 and spring 2009 to negotiate the compression/inversion process and study. Over ten research studies/reports of compression/inversion (CI) in the university environment were reviewed to discover:

- Definitions of compression and inversion,
- Factors considered in determining CI
- Methods and models used to identify CI
- Methods and models used to address CI

In January 2009 the group agreed to use the WMU Salary Compression Study as a guideline to develop the method for conducting the FGCU study. The following specific factors were agreed to by the group (as taken from the meeting minutes):

- Definition of Salary Compression and Salary Inversion (specifically lines 3-10) and to include the conceptual statement presented on the first page of the WMU Salary Compression document.
- Divide the survey population into three separate study groups:
 - Rank faculty (Assistant Professors; Associate Professors; and Professors)
 - Instructors (Level I; Level II; and Level III)
 - Advisors (Level I; and Level II across all colleges/schools with each level as a single grouping)
- Newly promoted (junior in new [promoted] rank or level) will be included in Study at current rank or level attained as of August 7, 2008.

- “Years in rank or level” are actual years at FGCU since hired or last promoted.
- Years in rank or level must be at the overall satisfactory level or above. For example, a faculty with 9 years at FGCU will receive 9 “years in rank or level” if the annual evaluation was satisfactory for all nine years. If the faculty had an overall unsatisfactory evaluation for one year while at FGCU then the faculty will be awarded/assigned 8 years in rank or level.
- In-unit Faculty who held prior Administrative out-of-unit appointments shall be included in the Study according to their total years in the current rank or level at FGCU.
- Study will be conducted using the 9-month base salary; therefore, the current salary for faculty on a 12 month appointment will be adjusted using 81.8 percent of the 12 month base salary to arrive at the 9 month base salary.
- Study will be conducted using “Department/4-digit CIP Code” as the unit of analysis (lines 22-27). If the Department contains substantially different, well defined fields (CIP Codes) with substantially different market salaries, the study will separate the department into different CIP codes for the purpose of the analysis. If the department has too small a number of faculty then the CIP code can be combined with similar/”the next most appropriate” CIP code/department for the purpose of conducting the analysis.
- Study will use January 1, 2009 base salary and rank or level as appropriate.
- FTE will be normalized to 1.00, for any part-time appointments (those less than 1.00 FTE).
- Human Resources (HR) will provide data with the following characteristics:
 - Faculty name (to be removed and replaced with a unique identifier)
 - CIP Code
 - Current FTE
 - 9-month base salary normalized to 1.0 FTE
 - Rank or Level
 - Assigned years in rank or level
- Following the process used in the “WMU Study” and using the data provided by HR, regression analysis ($Y = a + b(x1)$) will be used to determine “b” the slope for the university by conducting separate university-wide analyses for each group as follows:
 - Academic Advisors I
 - Academic Advisors II
 - Instructor I
 - Instructor II
 - Assistant Professor
 - Associate Professor
 - Professors
- Thereafter similar analyses will be provided by rank or level and CIP code. These “rank and CIP code” analyses will be used to derive the Constant “a” (i.e. the “Y” intercept) for each rank or level by CIP Code (Ref: WMU Study).
- The target salary for each employee can then be derive using the regression model ($Y = a + b (X1)$), as follows:

- $Y = \text{Constant} + (\text{"b" or university derived slope for a given rank or level}) \times \text{intercept multiplied by the assigned years in rank or level for a specific faculty (X1)}$
- Adjusted regression intercepts will be used in the analysis of salary compression between ranks or levels in each "department/CIP". **NOTE:** The consideration of whether to use 9% between Assistant professors and Associate Professors and 12% between Associate Professors and professors was discussed, but not agreed upon.

Subsequent to that meeting, regression analyses of salaries on years in rank or level were done as planned. These analyses captured the existing relationship between salaries and years in rank or level for each of the groups analyzed across the whole university. **The intercept represents a salary with zero years in rank or level. The slope represents a dollar amount associated with each year in rank or level. The R2 describes the strength of the relationship between salary and years in rank or level.** The relationships were low and inconsistent in general; the R2 were low and the slopes varied greatly across the university.

In addition, the planned analyses proved problematic for a number of reasons:

- In the WAMU study, a single slope for the university was used. (The slope amounts to the number of salary dollars each year in rank or level was worth for each department and for the university as a whole.) However, we were unable to obtain the method that they used to determine what that slope would be.
- We found separate, different slopes for each college. Most slopes were low and some were negative. Combining these slopes across colleges, therefore, lead to misleading information.
- 4-digit CIP codes did not allow sufficient numbers of people for meaningful analyses. (However, 2-digit CIP codes would have been approximately college level data, which we ultimately used.)
- Instructors and Advisors had few data points for level II, and these were at zero years.

PART II: UFF-FGCU STUDY COMPLETION AND PROPOSAL

Consequently, members of the UFF team met to analyze the data based instead on each college's salaries overall and by faculty level within each college, and to consider possible proposals for consideration by the IBB Team. We found compression and inversion in many colleges. The following data show **compression** (low slopes, small differences in intercepts within colleges), and **inversion** (negative slopes).

Table 1. Shows the regression results for each college overall, grouping all faculty and levels together. Intercepts vary by college, highlighting differing "market rates" for colleges. Note also that the slopes vary from \$3,116 per year in CPS to a negative cost -\$533.60 per year in COB, the premium and cost, respectively, for staying at FGCU for one year.)

Table 1 Regression Results by Each College, Combining Faculty Levels within Colleges

College	Intercept (a)	Slope (b)	R2
CAS	\$ 45,519	\$ 2,121	0.258
COB	90,260	- 533.6	0.011
COE	50,930	2,652	0.477
CHP	57,997	510.1	0.025
CPS	52,760	3,116	0.416
Library	42,919	236.4	0.003
Advisors	30,637	491.4	0.511

The regression analyses were conducted for each level within each college. Differences among intercepts reflect the calculated salary for each rank or level with zero years in rank or level. Compression is evident when this difference is small, and inversion when the intercept of the lower rank or level is higher than that of the higher level. Small slopes reflect compression; negative slopes reflect inversion.

Table 2. Regression Results for CAS

College - CAS	Intercept	Slope	R2
Full Professor	71,190	1,451	0.5
Associate Professor	56,039	986	0.413
Assistant Professor	49,078	118.2	0.01
Instructor/Advisor	35,081	312.3	0.063

Table 3. Regression Results for COB

College - COB	Intercept	Slope	R2
Full Professor	107,300	-789.2	0.07
Associate Professor	94,386	-893.4	0.141
Assistant Professor	86,005	-10,241	0.009
Instructor/Advisor	64,803	-517.7	0.065

Table 4. Regression Results for COE

College - COE	Intercept	Slope	R2
Full Professor	69,630	1,284	0.746
Associate Professor	56,591	1,510	0.773
Assistant Professor	52,487	-171.1	0.013
Instructor/Advisor	41,973	-729.8	0.59

Table 5. Regression Results for CHP

College - CHP	Intercept	Slope	R2
Full Professor	71,094	1,229	0.968
Associate Professor	71,147	-853.2	1
Assistant Professor	60,846	119.3	0.005
Instructor/Advisor	65,107	-2,639	0.123

Table 6. Regression Results for CPS

College - CPS	Intercept	Slope	R2
Full Professor	73,326	1,491	0.476
Associate Professor	64,059	52.17	0
Assistant Professor	54,009	1,461	0.022
Instructor/Advisor	44,558	-4,381	0.494

Table 7. Regression Results for Library

College - Library	Intercept	Slope	R2
Full Professor	48,983	1,584	1
Associate Professor	46,088	-1,290	0.299
Assistant Professor	34,522	975.8	0.879
Instructor/Advisor I	30,022	594.8	.756

Determining Target Salaries

Under this proposal, target salaries for all faculty would be computed using compression/inversion-rectified intercepts and slopes.

- Target Salary = New intercept by college and rank + (new slope * years in rank/level for each faculty member).
- Faculty earning below their target salary would receive raises to reach the target salary.
- Faculty earning equal to or above their target salary would not receive a raise.

Determining New Slope

Since the slopes varied greatly by college and by rank or level within college, there is no existing single slope nor combination of existing slopes that could be used to determine “target salaries” for faculty by years in rank or level. Consequently, we used the concept of what a year at FGCU “should” be worth, given our historical salary raises over the last few years: 2004-5, 5%; 2005-6, 5%; 2006-7, 4.5%; 2007-8, 1%+, 2008-9, 1%+. Consequently, depending on how many years we wish to average over, the yearly rate (slope) varies from **3.3% to 1% of the intercept value per year.**

Determining New Intercepts

The intercepts (zero-year rates) for Professors, Associate Professors, Assistant Professors, and Instructors/Advisors shows that each higher rank or level is paid more than the next lower rank or level. Compression occurs when this difference is less than it “should be.” What should the difference in intercepts be between the Assistant and Associate, and Associate and Professor?

When faculty are promoted, they should get a new salary that is higher than their previous salary by 9% for new Associates at zero years, or 12% for a new Professor at zero years. This means the new intercepts (zero-years) must be 9% or 12% higher than a target salary at the lower rank or level with experience. We used the intercepts of the Assistants as computed by the regression equations as the baseline, then computed a new intercept for Associate and Full based on the time a person would be expected to serve at a lower rank or level before being promoted (5 years).

For example, an Assistant Professor ‘s target salary as an Assistant with experience would be: (intercept + (slope*years in rank or level))=y. Assuming that an Assistant goes up for promotion after 5 years and then becomes an Associate with zero-years, the faculty member’s new Associate salary at zero-years would be y + 9%, and so that would also be the new intercept value.

Table 8. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for CAS

College - CAS	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	71,190	65,460.24**	71,251.44	78,524.8
Associate Professor	56,039	55,948.92*	58,402.82	61,347.5
Assistant Professor	49,078			
Instructor/Advisor	35,081			

*New Associate Intercept = Old Asst intercept * 1.14

$$= 49,078 * (1\%/yr)(5 \text{ yrs}) (.09 \text{ promotion}) + 49,078 = 55,948.92$$

**New Full intercept = New Associate intercept * 1.17

$$= 55,948 * (1\%/yr)(5 \text{ yrs}) (.12 \text{ promotion}) + 55,948 = 65,460.24$$

Table 9. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for COB

College - COB	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	107,300	114,713.5	124,862	137,608
Associate Professor	94,386	98,045.7	102,346	107,506
Assistant Professor	86,005			
Instructor/Advisor	64,803			

Table 10. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for COE

College - COE	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	69,630	70,007	78,121	83,979
Associate Professor	56,591	59,835	64,034	65,608
Assistant Professor	52,487			
Instructor/Advisor	41,973			

Table 11. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for CHP

College - CHP	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	71,094	72,037	78,410	86,414
Associate Professor	71,147	61,570	64,270	67,511
Assistant Professor	60,846			
Instructor/Advisor	65,107			

Table 12. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for CPS

College - CPS	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	73,326	81,156	88,336	97,353
Associate Professor	64,059	69,364	72,406	76,057
Assistant Professor	54,009			
Instructor/Advisor	44,558			

Table 13. New computed Intercepts, assuming average 5 years at previous rank or level plus promotion for **Library**

College - Library	OLD Intercept	New intercept 1%/yr slope	New intercept 2%/yr slope	New intercept 3.2%/ yr slope
Full Professor	48,983	46,045	50,119	55,235
Associate Professor	46,088	39,355.08	41,081	43,152
Assistant Professor	34,522			
Instructor/Advisor	30,022			

UFF-FGCU Proposal

After much discussion of these results and possible proposals based on this report, UFF-FGCU made this proposal to the IBB Team:

Use the method described in UFF's Report (Rev. 6/10/09) to determine target salaries for in-unit faculty and fund the study as necessary to meet:

- **3.2% slope**
- **5 years average employment for promotion**
- **New intercepts that are the greater of computed or actual**

This proposal was not accepted. The University did not offer any proposals to counter this one. In general, the response was, "FGCU is not in a position to fund raises this year."

UFF's proposals to fund the proposal in part over several years, or to put in the contract that it would be funded if money were to become available were not accepted.