

**PRESENTATION OF GRADE INFLATION ANALYSIS TO LSU FACULTY SENATE**

**ON BEHALF OF LSU ADMISSIONS, STANDARDS AND HONORS COMMITTEE**

**PURSUANT TO LSU FACULTY SENATE RESOLUTION 03-04**

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# PRESENTATION OF GRADE INFLATION ANALYSIS TO LSU FACULTY SENATE

## Data Base and Methods.

- Description of Data Base.
  1. Twenty two terms (semesters) of undergraduate data (Fall and Spring only) from Fall 1992 to Spring 2003.
  2. Department/level data are used. That is, GPAs and other variables are averaged for each term, department and level (freshman, sophomore, junior and senior) combination.
- Description of Methods.

All analyses are weighted by the number of students at a Department/level in a given term divided by total students in that term.

## Summary of Results Obtained Without Adjusting for Potential Causes.

- There are large, statistically significant, differences in **levels** of GPAs across colleges that persist over time. The three colleges with the highest average GPAs are EDUC (3.5), HNRS (3.6) and SW (3.5). Four of the 14 colleges (A&S, BADM, BASC and ENGR) have GPAs below the LSU average of 2.9; see Table 1.
- LSU exhibits a small, but statistically significant, **growth** in GPA through time. GPAs in some colleges exhibit statistically significant compound growth rates, while others do not; see Table 1.

## Potential Causes of GPA Results.

- Some variables cause GPAs to vary across colleges, others cause changes in GPA through time, and some variables cause both differences across colleges and changes through time.
- There are differences in academic profiles, including ACT and high school GPAs, across colleges. Except for HNRS, these differences in profiles do **not** explain observed differences in college GPAs; see Table 2.
- The average level of course (freshman, sophomore etc.): These vary across colleges, but vary very little through time; see Table 2.
- Effect of students taking courses above or below their nominal level (freshman, sophomore etc.): Such differences from nominal course level vary across colleges, but vary very little through time.
- Increases in admission standards through time cause mean ACT scores and high school GPAs to increase and cause the standard deviations of these scores to decline; see Table 3.
- Drop rates vary across colleges and through time; see Tables 2 and 3.

## Growth Rates With and Without Adjustment for Causes.

- Three colleges that teach about 66% of student credit hours (A&S, ADSN and BASC) have **statistically** significant positive growth rates in GPAs, both with and without adjustment for causal variables; see Table 4.
- If observed trends persist, LSU GPAs will increase about 6.8% per **decade**.

## Implications of Results.

- GPA differences across colleges affect graduation with honors.
- GPA differences across colleges potentially affect admissions to those graduate schools (such as business and medicine) that admit students from a variety of undergraduate majors.
- Changes in average GPA through time, holding input quality constant, impair comparability of student performance over time.

**Table 1: Weighted Mean GPAs for LSU and Colleges Using Four Sub-Periods Totaling 22 Terms of Department/Level Data from Fall 1992 to Spring 2003**

**This table does NOT control for variables that cause GPAs to vary across colleges or through time.##**

	Weight	Period1	Period2	Period3	Period4	Mean	Differences of College GPAs from LSU Mean (Students t)**	Compound Growth	Growth Rate per Annum
Number of Terms		6	5	5	6				
A&S	0.4280	2.774	2.823	2.831	2.916	2.837	-11.74	1.0510	0.0062*
ADSN	0.0415	2.940	2.940	3.012	3.097	2.999	12.29	1.0532	0.0065*
AGRI	0.0327	3.027	3.117	3.167	3.202	3.127	29.02	1.0578	0.0071*
BADM	0.1197	2.747	2.792	2.819	2.791	2.786	-9.74	1.0160	0.0020
BASC	0.1949	2.607	2.717	2.782	2.830	2.732	-15.20	1.0853	0.0103*
CEER	0.0029	3.217	2.990	3.172	3.295	3.176	7.60	1.0241	0.0030
EDUC	0.0381	3.448	3.508	3.524	3.494	3.491	44.91	1.0131	0.0016
ENGR	0.0602	2.800	2.810	2.879	2.893	2.846	-4.86	1.0331	0.0041
HNRS	0.0057	3.567	3.656	3.680	3.657	3.637	32.18	1.0251	0.0031
LIS	0.0048	3.156	3.388	3.255	3.416	3.302	16.21	1.0825	0.0100*
MCOM	0.0188	3.039	2.963	3.015	3.118	3.038	8.66	1.0259	0.0032
MDA	0.0494	3.227	3.294	3.303	3.421	3.312	31.10	1.0601	0.0073
SW	0.0029	3.256	3.503	3.496	3.726	3.495	15.71	1.1443	0.0170*
VETM	0.0006	3.184	3.113	3.449	3.465	3.305	6.77	1.0882	0.0106
LSU	1.0000	2.811	2.875	2.905	2.962	2.889		1.0537	0.0066*

\*\* The probabilities of all t statistics are less than 0.0001 using a two-tailed test. A t statistic greater than about 2.5 is 'large.'

## **Explanatory Notes.**

1. Since the means are weighted by department/level frequency, the LSU mean is not a simple average of the college means.
2. Compound growth is the Period4 mean divided by the Period1 mean. It is the overall **compounded** growth over the eight years from the mid-point of period 1 to the mid-point of period 4.
3. Growth rate is the **compound** growth rate per annum over the eight years from the mid-point of period 1 to the mid-point of period 4. An \* indicates the growth rate is significantly different from zero using a two-tailed test.
4. Legend: LSU Colleges.

A&S	Arts and Science	ENGR	Engineering
ADSN	Art and Design	HNRS	Honors
AGRI	Agriculture	LIS	Library and Information Science
BADM	Business Administration	MCOM	Mass Communication
BASC	Basic Sciences	MDA	Music and Dramatic Arts
CEER	Coast and Environment	SW	Social Work
EDUC	Education	VETM	Veterinary Medicine

**Table 2: Differences in Causal Variables Across Colleges**

**Weighted Means of Variables that Affect GPAs for LSU and Colleges Using 22 Terms of Department/Level Data from Fall 1992 to Spring 2003 ##**

	<b>GPA</b>	<b>ACT Comp</b>	<b>ACT English</b>	<b>ACT Math</b>	<b>HS GPA</b>	<b>Drop Rate</b>	<b>Nominal Course Level</b>	<b>Relative Student Level</b>
A&S	2.837	22.406	22.893	21.552	2.804	0.099	1.826	1.278
ADSN	2.999	22.012	22.539	21.125	2.628	0.081	1.914	1.502
AGRI	3.127	21.547	22.081	20.658	2.746	0.053	2.452	1.302
BADM	2.786	22.235	22.500	22.083	2.765	0.101	2.569	1.190
BASC	2.732	23.454	23.669	23.098	2.950	0.130	1.464	1.587
CEER	3.176	22.583	22.981	21.577	2.753	0.067	1.828	1.823
EDUC	3.491	21.430	22.022	20.812	2.794	0.053	2.144	1.606
ENGR	2.846	23.330	22.793	24.156	2.758	0.089	2.806	1.282
HNRS	3.637	28.998	29.721	27.570	3.499	0.018	1.652	1.062
LIS	3.302	22.359	23.016	21.315	2.842	0.099	1.019	1.841
MCOM	3.038	22.784	23.810	21.493	2.847	0.059	2.566	1.102
MDA	3.312	22.821	23.419	22.087	2.915	0.050	2.024	1.269
SW	3.495	20.759	21.617	19.802	2.620	0.050	2.725	1.182
VETM	3.305	23.673	24.126	22.463	3.082	0.029	2.125	1.270
<b>LSU</b>	<b>2.889</b>	<b>22.625</b>	<b>22.997</b>	<b>22.052</b>	<b>2.825</b>	<b>0.097</b>	<b>1.961</b>	<b>1.350</b>

**## Explanatory Notes.**

1. All means are weighted by department/level frequency, so the LSU mean is not a simple average of the college means.
2. HS GPA is the academic GPA.
3. Drop rate is the withdrawal rate.
4. Nominal course level is the course level: Freshman (1000) = 1 etc.
5. Relative student level is the actual student composition of each department level divided by the nominal level. For instance, if all the students in a sophomore course (level = 2) are seniors (level = 4), relative student level 2.
6. Growth rate is the **compound** growth rate per annum over the eight years from the mid-point of period1 to the mid-point of period4.
7. GPAs also depend on department size as measured by number of students.

Table 3: Changes in Causal Variables Through Time

Growth Rates for LSU and Colleges Using 22 Terms of Department/Level Data Fall 1992 to Spring 2003 <sup>##</sup>

College	GPA	Drop Rate	Growth Rates in Means				Growth Rates in Standard Deviations			
			ACT Comp	ACT English	ACT Math	HS GPA	ACT Comp	ACT English	ACT Math	HS GPA
A&S	0.0062	-0.011	0.009	0.008	0.007	0.031	-0.040	-0.040	-0.031	-0.112
ADSN	0.0065	-0.006	0.011	0.010	0.010	0.040	-0.022	0.018	-0.021	-0.111
AGRI	0.0071	-0.020	0.012	0.009	0.010	0.036	-0.046	-0.030	-0.046	-0.068
BADM	0.0020	-0.013	0.009	0.006	0.007	0.027	-0.066	-0.054	-0.061	-0.085
BASC	0.0103	-0.035	0.008	0.007	0.006	0.029	-0.060	-0.061	-0.036	-0.094
CEER	0.0030	0.000	0.010	0.010	0.008	0.038	-0.029	-0.085	-0.022	-0.149
EDUC	0.0016	0.030	0.011	0.008	0.010	0.032	-0.050	-0.046	-0.035	-0.119
ENGR	0.0041	-0.036	0.005	0.003	0.003	0.026	-0.021	-0.021	0.000	-0.043
HNRS	0.0031	-0.038	0.003	0.004	0.003	0.013	-0.024	-0.005	0.064	-0.056
LIS	0.0100	0.004	0.009	0.009	0.006	0.028	.	.	.	.
MCOM	0.0032	-0.066	0.007	0.003	0.008	0.030	-0.182	-0.134	-0.101	-0.159
MDA	0.0073	-0.018	0.010	0.009	0.007	0.028	-0.071	-0.046	-0.070	-0.173
SW	0.0170	-0.099	0.014	0.009	0.014	0.040	-0.019	-0.051	0.052	-0.031
VETM	0.0106	-0.078	0.011	0.008	0.011	0.028	-0.148	-0.125	-0.144	0.026
LSU	<b>0.0066</b>	<b>-0.020</b>	<b>0.009</b>	<b>0.007</b>	<b>0.007</b>	<b>0.030</b>	<b>-0.040</b>	<b>-0.030</b>	<b>-0.030</b>	<b>-0.091</b>

1. All means are weighted by department/level frequency, so the LSU mean is not a simple average of the college means.
2. HS GPA is the academic GPA.
3. Drop rate is the withdrawal rate.
4. Growth rate is the **compound** growth rate per annum over the eight years from the mid-point of period1 to the mid-point of period4.

**Table 4: GPA Growth Rates for LSU and Colleges Using 22 Terms of Department/Level Data Fall 1992 to Spring 2003<sup>##</sup>**

	Unadjusted Growth Rates from Table 1		Growth Rates Adjusted for the Effects of Causal Variables		Weight
	Growth Rate	Statistically Significant?	Growth Rate	Statistically Significant?	
<b>A&amp;S</b>	<b>0.0062</b>	<b>Y</b>	<b>0.0069</b>	<b>Y</b>	<b>0.4280</b>
<b>ADSN</b>	<b>0.0065</b>	<b>Y</b>	<b>0.0085</b>	<b>Y</b>	<b>0.0415</b>
AGRI	0.0071	Y	-0.0007	N	0.0327
BADM	0.0020	N	0.0012	N	0.1197
<b>BASC</b>	<b>0.0103</b>	<b>Y</b>	<b>0.0109</b>	<b>Y</b>	<b>0.1949</b>
CEER	0.0030	N	0.0225	Y	0.0029
EDUC	0.0016	N	0.0061	Y	0.0381
ENGR	0.0041	N	-0.0001	N	0.0602
HNRS	0.0031	N	0.0020	N	0.0057
LIS	0.0100	Y	-0.0104	N	0.0048
MCOM	0.0032	N	0.0253	Y	0.0188
MDA	0.0073	N	0.0000	N	0.0494
SW	0.0170	Y	-0.0400	Y	0.0029
VETM	0.0106	N	0.0219	Y	0.0006
<b>LSU</b>	<b>0.0066</b>	<b>Y</b>	<b>0.0062</b>	<b>Y</b>	<b>1.0000</b>

**## Explanatory Notes.**

1. Since the means are weighted by department/level frequency, the LSU mean is not a simple average of the college means.
3. Growth rate is the **compound** growth rate per annum over the eight years from the mid-point of period1 to the mid-point of period4.