

## **OBSERVATIONS AND INTERPRETATIONS OF THE EFFECTS OF KSU 1101 ON FIRST-YEAR GPAs**

In the analysis of KSU's 2007 FT/FT Freshman cohort, the average first-year GPA of freshmen in the cohort was somewhat higher for those who enrolled in KSU 1101 than the average for those who did not. The difference between the average GPAs of the two groups was about three-tenths of a point on the four-point scale in favor of KSU 1101 participants and was statistically significant ( $p < .001$  using a 2-tailed t-test, see attachment).

In order to better reveal the nature of that small difference in average GPAs, a crosstabs analysis comparing the proportions of students in the two groups who were not in good academic standing and who were not maintaining a 3.0 for HOPE scholarship eligibility was performed on the data. In both analyses, larger proportions of the students who had not enrolled in KSU 1101 had first-year GPAs below 2.0 and below 3.0 than those who had taken KSU 1101. Less than one out of every six of the KSU 1101 participants had a first-year GPA less than 2.0 compared to one out of every four of those who had not enrolled in KSU 1101. Nearly 50% of those who enrolled in KSU 1101 had a first-year GPA below 3.0 compared to nearly 60% of those who had not enrolled in KSU 1101. Here too, both chi-square tests were statistically significant ( $p < .001$ , see attachment).

There are two uncontrolled factors that may be contributing to these significant differences that should be analyzed further before the positive effects of KSU 1101 on first-year GPA are celebrated. One of those is the effect of including KSU 1101 grades (which have tended to be higher than the grades in other courses) in the GPA calculations of one of the two groups. Excluding the KSU 1101 grade from GPA calculations could control for that factor. If the average first-year GPAs of both groups in courses other than KSU 1101 continue to be significantly different favoring KSU 1101, confidence in the positive effects of KSU 1101 participation could be boosted.

Another uncontrolled factor that deserves further analysis is the enrollment status of the students in both groups by the end of the first year. Since everyone in the 2007 FT/FT Freshman cohort was included in the initial means comparison, some of the "first-year GPAs" in that comparison did not actually reflect a full academic year of study at KSU. Students in the cohort who withdrew during their first semester at KSU were treated as having a 0.0 first-year GPA. Likewise, students who failed to return to KSU after the fall semester had first-year GPAs based only on one semester's work instead of two. A better test of the impact of KSU 1101 on academic performance through the end of the first year would be to focus only on those who enrolled for the entire year. Again, if the average first-year GPAs of both groups continue to be significantly different favoring KSU 1101, confidence in the positive impact of KSU 1101 participation would be reinforced.

In addition, both of these factors could be simultaneously controlled in subsequent analyses if KSU 1101 grades were not included and only students who completed both semesters were compared.

## Means Comparison of First-Year GPA for KSU 1101 Participants and Nonparticipants

### Group Statistics

	No_Yes	N	Mean	Std. Deviation	Std. Error Mean
KSU	.00	697	2.4806	1.10600	.04189
	1.00	1714	2.7899	.85424	.02063

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
KSU	Equal variances assumed	75.951	.000	-7.370	2409	.000	-.30921	.04196	-.39149	-.22693
	Equal variances not assumed			-6.621	1049.543	.000	-.30921	.04670	-.40084	-.21758

## Crosstab Analysis For GPA's Less Than 2.0

	Yes – KSU 1101		No – KSU 1101	
GPA < 2.0	261	15%	182	26%
GPA => 2.0	1453	85%	515	74%
<b>Total</b>	<b>1714</b>	<b>100%</b>	<b>697</b>	<b>100%</b>

Chi-Square equals 39.140

Chi-Square with Yates correction equals 38.417

Degrees of Freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .0000 (This total is the same with and without the Yates correction)

## Crosstab Analysis For GPA's Less Than 3.0

	Yes – KSU 1101		No – KSU 1101	
GPA < 3.0	837	49%	403	58%
GPA => 3.0	877	51%	294	42%
<b>Total</b>	<b>1714</b>	<b>100%</b>	<b>697</b>	<b>100%</b>

Chi-Square equals 16.018

Chi-Square with Yates correction equals 15.660

Degrees of freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .0001 (This total is the same with and without the Yates correction)

**UPON FURTHER REVIEW: REVISED OBSERVATIONS AND INTERPRETATIONS  
OF THE EFFECTS OF KSU 1101 ON FIRST-YEAR GPAs  
June 12, 2008**

In a follow-up analysis of KSU's 2007 FT/FT Freshman cohort, the relationship between participation in KSU 1101 and the average first-year GPAs of retained freshmen who completed their first fall and spring semesters at KSU was re-examined with and without the inclusion of KSU 1101 grades in GPA calculations. This follow-up analysis excluded students in the original cohort who withdrew during their first semester or did not return after the first fall term, producing "cleaner" data for comparisons of the academic performance of retained students by the end of their first year at KSU. A key question driving this follow-up analysis was whether observed differences in the average first-year GPAs of those who did and did not take KSU 1101 appear to be a function of academic success skills learned in KSU 1101, or were merely attributable to having KSU 1101 grades pull the average GPA higher for one group and not the other. Once controls for non-retention and KSU 1101 grades were in place, differences previously observed between KSU 1101 participants and nonparticipants all but disappeared.

**Including KSU 1101 Grades in First-Year GPA Comparisons**

The average first-year GPA of KSU 1101 participants who were retained (2.9) was slightly higher than the average of retained nonparticipants (2.8) and that small absolute difference was statistically significant ( $p < .01$  using a two-tailed t-test, see attachment). In order to reveal the nature of that difference in average GPAs, a crosstabs analysis comparing the proportions of students in the two groups who were not in good academic standing and secondly, who were not maintaining a 3.0 for HOPE scholarship eligibility, was performed on the data. In that analysis, a larger proportion of the students who had not enrolled in KSU 1101 had first-year GPAs below 2.0 ( 15 %) than those who had taken KSU 1101 ( 10 %). Even though that difference was statistically significant ( $p < .01$  using Chi Square ), its meaningfulness in absolute terms appears to be negligible. There was also a significant difference ( $p < .05$ ) between the proportion of those who took KSU 1101 and failed to maintain a 3.0 (51%) and the proportion of those who did not take KSU 1101 and whose first-year GPA was below 3.0 (46%). This result was opposite what was expected, but it too reflected such a small difference in an absolute sense that its meaningfulness is suspect.

**Excluding KSU 1101 Grades in First-Year GPA Comparisons**

When the effects of KSU 1101 grades were controlled by excluding them from the GPA calculations, some modest shifts in the results for KSU 1101 participants compared with nonparticipants were observed. Instead of seeing slightly higher first-year GPAs for KSU1101 participants, they were slightly lower (2.7 vs 2.8, see attached t-test). That small difference was statistically significant ( $p < .01$ ), but the absolute difference of one-tenth of a point on a four point GPA scale appears negligible. The small difference previously favoring KSU 1101 participation in terms of avoiding academic warning was reversed here to a small disadvantage when KSU grades were excluded. However, that two-percentage point difference between of 17% of KSU 1101 GPAs falling below 3.0 and 15% for nonparticipants in KSU 1101 was not statistically significant ( $p > .05$  for Chi Square). The difference noted above that a higher proportion of KSU

1101 participants than nonparticipants failed to earn at least a 3.0 first-year GPA for HOPE scholarship eligibility grew slightly by a couple of percentage points when KSU 1101 grades were excluded (58% compared to 51%) and remained statistically significant ( $p < .01$ ).

### **Is the Development of Academic Achievement Skills Stressed in All KSU 1101 Sections?**

The lack of any substantive relationship emerging from this analysis between participation in KSU 1101 and academic performance in the first-year at KSU should not be surprising if the development of academic achievement skills and strategies are not major learning objectives and emphases in most sections of KSU 1101. While there may have been a notable emphasis recently on raising the academic rigor of the course, elevating the academic challenge of the experience does not ensure that academic achievement skills and strategies have been learned in the process.

## Means Comparison of GPA for KSU 1101 Participants and Nonparticipants Completing Fall 2006 and Spring 2007 Semesters

### KSU 1101 Grades are Included

#### Group Statistics

	NO_YES	N	Mean	Std. Deviation	Std. Error Mean
GPA	.00	574	2.8139	.75247	.03141
	1.00	1560	2.9206	.68013	.01722

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
GPA	Equal variances assumed	9.061	.003	-3.121	2132	.002	-.10671	.03419	-.17375	-.03967
	Equal variances not assumed			-2.979	938.110	.003	-.10671	.03582	-.17700	-.03642

**KSU 1101 Participants and Nonparticipants  
Completing Fall 2006/Spring 2007 Semesters**

**Crosstab Analysis For GPA's Less Than 2.0  
KSU 1101 Grades are Included**

	<b>Yes – KSU 1101 – Grades Included</b>		<b>No – KSU 1101</b>	
GPA < 2.0	157	10%	84	15%
GPA => 2.0	1403	90%	490	85%
<b>Total</b>	<b>1560</b>	<b>100%</b>	<b>574</b>	<b>100%</b>

Chi-Square equals 8.748

Chi-Square with Yates correction equals 8.298

Degrees of Freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .0031

Probability of chance with Yates Correction = .0040

**Crosstab Analysis For GPA's Less Than 3.0  
KSU 1101 Grades are Included**

	<b>Yes – KSU 1101 – Grades Included</b>		<b>No – KSU 1101</b>	
GPA < 3.0	713	46%	290	51%
GPA => 3.0	847	54%	284	49%
<b>Total</b>	<b>1560</b>	<b>100%</b>	<b>574</b>	<b>100%</b>

Chi-Square equals 3.909

Chi-Square with Yates correction equals 3.718

Degrees of freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .0480

Probability of chance with Yates Correction = .0538

## Means Comparison of First-Year GPA for KSU 1101 Participants and Nonparticipants Completing Fall 2006/Spring 2007 Semesters

### KSU 1101 Grades are Excluded

#### Group Statistics

	NO	YES	N	Mean	Std. Deviation	Std. Error Mean
GPA	.00		574	2.8139	.75247	.03141
	1.00		1560	2.7081	.75806	.01919

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
GPA	Equal variances assumed	.182	.670	2.864	2132	.004	.10578	.03693	.03335	.17821
	Equal variances not assumed			2.874	1028.165	.004	.10578	.03681	.03355	.17800

**KSU 1101 Participants and Nonparticipants  
Completing Fall 2006/Spring 2007 Semesters**

**Crosstab Analysis For GPA's Less Than 2.0  
KSU 1101 Grades are Excluded**

	<b>Yes – KSU 1101 Grades Excluded</b>		<b>No – KSU 1101</b>	
GPA < 2.0	265	17%	84	15%
GPA => 2.0	1295	83%	490	85%
<b>Total</b>	<b>1560</b>	<b>100%</b>	<b>574</b>	<b>100%</b>

Chi-Square equals 1.698

Chi-Square with Yates correction equals 1.531

Degrees of Freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .1925

Probability of chance with Yates Correction = .2160

**Crosstab Analysis For GPA's Less Than 3.0  
KSU 1101 Grades are Excluded**

	<b>Yes – KSU 1101 Grades Excluded</b>		<b>No – KSU 1101</b>	
GPA < 3.0	910	58%	290	51%
GPA => 3.0	650	42%	284	49%
<b>Total</b>	<b>1560</b>	<b>100%</b>	<b>574</b>	<b>100%</b>

Chi-Square equals 10.401

Chi-Square with Yates correction equals 10.086

Degrees of freedom = 1 (This total is the same with and without the Yates correction)

Probability of chance = .0013

Probability of chance with Yates Correction = .0015