

Supplemental Material

CBE—Life Sciences Education

Wilson *et al.*

Supplemental Figure 1.

The Graduate School. The GSBS is the degree-granting entity of two separate components of the University of Texas System that are both located within the Texas Medical Center (the largest medical center in the world): The University of Texas Health Sciences Center at Houston (UTHealth) and MD Anderson Cancer Center. The parent institutions award MS, PhD, and MD/PhD degrees through the GSBS and the 607 GSBS faculty members have primary appointments at MD Anderson Cancer Center or one of six schools within UTHealth (i.e. McGovern Medical School, School of Public Health, School of Dentistry, or School of Biomedical Informatics, and School of Nursing). GSBS students and faculty mentors have access to more than 60 core laboratory facilities and specialized instrumentation through these and other collaborative agreements. GSBS students and faculty conduct research at a number of different sites located in and around the Texas Medical Center, as well as at MD Anderson Cancer Center's Science Park campus located 120 miles from Houston, near Smithville, TX.

Doctoral Graduate Programs. A feature of the GSBS is that applicants are admitted as “undifferentiated” graduate students who may choose their specialization depending on their interests². This umbrella admissions process allows considerable flexibility such that matriculating PhD students are not committed to a specific program, but rather may use their three first-year rotations to explore any GSBS laboratory. However, students must affiliate with one of 9 PhD Programs at the end of their first year at GSBS: Biochemistry and Cell Biology, Cancer Biology, Genetics and Epigenetics, Immunology, Medical Physics, Microbiology and Infectious Diseases, Neuroscience, Quantitative Sciences, and Therapeutics and Pharmacology.

Applicant review. Completed applications are initially separated based on quantitative criteria (GRE and GPA) into two groups (Tier I and Tier II) to facilitate review. Every Tier II applicant (those for which any of the three GRE percentile scores is less than 50% and/or in which the GPA is less than 3.0) is reviewed by four separate individuals in the Deans' office that have PhD degrees in the biomedical sciences. The review process involves reading each of the applications completely (letters, essays, grades) to prepare for a subsequent meeting in which all of the applications are discussed. Thus, every Tier II application is read and, based on these meeting discussions, moved from the Tier II into the Tier I group to be discussed by the full GSBS admissions committee (16 voting members) that has representation from all graduate programs. Admissions Committee members are not informed about whether an application had been originally assigned to the Tier I or II groups. Applications are assigned for review to three reviewers from the admissions committee with the primary reviewer typically being from a program of primary interest to the applicant. The admissions committee meetings proceed in a manner similar to NIH study sections where each applicant is presented by the primary, secondary, and tertiary reviewers followed by open discussion of each application. Scoring of each applicant is similar to NIH reviews in that area scores as well as an overall score are required. The committee is instructed to use the entire scoring range otherwise score compression will blunt the impact of their recommendations. The scoring range scale is from 1 – 9 (1=most qualified and 9=lowest qualified) in whole numbers (see below).

The admissions committee. The admissions committee is composed of 16 faculty members, the Associate Dean of Admissions, and the Assistant Director of Admissions. Faculty members are full voting members, while others serve in an *ex officio* capacity. Members of the committee receive copies of applications one week in advance of a meeting, and three members are assigned to review and score each application based on the criteria above. Applications are discussed in alphabetical order in NIH

study section format in which comments from the primary, secondary and tertiary reviewers are followed by an additional question and comment period from other committee members. Following the discussion, the three reviewers offer final scores for the applicant that provides a range for the scoring by other committee members, and each member submits their final score for that applicant. Applicants that receive the highest scores from the committee are invited for interviews. The anticipated GSBS budget and an estimate of the number of acceptances of offers of admission are considered when planning for the size of an entering class. The in-person interview evaluation is used by the Deans as an additional guide to the final admissions decision.

Categories included in each applicant review (scored individually and total score). Members of the admissions committee consider these factors in aggregate, without any formula or distribution of weight, to determine whether an applicant is offered an in-person interview for admission into the graduate school.

1. *Research Experience* (information in research statement and reference letters)

- Quality and duration of research experience
- Ability to communicate accomplishments effectively
- Achievement (e.g., presentations, publications, meeting attendance)

2. *Recommendation letters*

- How well recommender knows candidate
- Role of recommender in training candidate
- Recommendation for research career

3. *Research and Personal Statements; Optional Essay*

- Description of research training experience
- Quality (and quantity) of experience
- Accomplishments, e.g., meeting presentations, publications
- Defined career objectives
- Supplementary essay information

Non-academic responsibilities (e.g. employment)

Race, ethnicity and socio-economic status to the extent that it may have disadvantaged the applicant

4. *Quantitative Measures* (Undergraduate and graduate)

- Trends in academic performance (improving, declining, maintaining high level)
- Honors and awards
- Achievement in science-related coursework, e.g., content, amount, grades, level of instruction (higher level undergrad, grad)
- Whether barriers were present to obtaining quality education, how these were overcome
- Academic institution (positive only).

- Performance on GRE
- International applicants
 - English language competency
 - TOEFL score

Applicant scoring criteria

Score of 1: Exceptional – a once every year or two application; any one reviewer will have AT MOST one such application per year; most reviewers will not have a “1”. An example applicant would have all “A” grades, high GRE scores, glowing/compelling letters of support, and one (or more) publications (perhaps 1st author). These applicants are potential merit scholarship awardees.

Score of 2: Outstanding – top 10%; in many ways a ‘can’t miss applicant’ but lacks some quality present in exceptional applications (e.g. publications, quantity/quality of research experience). Actively recruit.

Score of 3: Excellent – top 20%; a potentially high impact applicant; nonetheless, some aspects of the application (e.g. quantitative measures, essay) render it less impressive than outstanding applications. Actively recruit.

Score of 4: Very good – top 40%; the applicant has much going for them, with strengths clearly outweighing weaknesses; a few areas are of less high quality compared to the 1-3 applicants. These applicants are similar to some of the current students who have been successful in graduate school.

Score of 5: Good – average applicant; strengths outweigh weaknesses by a little bit; however, there are obvious problems (e.g. quantitative measures, letters not as outstanding, little research experience).

Score of 6: Satisfactory – bottom 40%; strengths equal weaknesses; many positives but also many negatives weaken enthusiasm.

Score of 7: Fair – bottom 20%; weaknesses outnumber strengths. This applicant is weaker than the current student population.

Score of 8: Marginal – bottom 10%; perhaps no fatal flaw (e.g. complete lack of research experience) but many problems with the applicant.

Score of 9: Poor – a once every year or two application; unacceptable scores for almost all criteria.

Supplemental Figure 2. One-way ANOVA with post hoc Tukey test.

SAMPLES

Sample 1=2004-2004

Sample 2=2008-2009

Sample 3=2012-2013

Sample 4=2016-2017

BLACK MALE GPA

Data Summary

	Samples					
	1	2	3	4	5	Total
N	2	5	2	2		11
$-\sum X$	7	16	5.4	5.4		33.8
-Mean	3.5	3.2	2.7	2.7		3.0727
$-\sum X^2$	24.82	51.9	14.76	14.76		106.24
Variance	0.32	0.175	0.18	0.18		0.2382
Std.Dev.	0.5657	0.4183	0.4243	0.4243		0.488
Std.Err.	0.4	0.1871	0.3	0.3		0.1471

Source	SS	df	MS	F	P
Treatment [between groups]	1.0018	3	0.3339	1.69	0.255185
Error	1.38	7	0.1971		
Ss/Bl					
Total	2.3818	10			

BLACK MALE GRE-Q

Data Summary

	Samples					
	1	2	3	4	5	Total
N	2	5	2	2		11
$-\sum X$	95	279	112	142		628
-Mean	47.5	55.8	56	71		57.0909

$-\sum X^2$	5353	18183	6722	10082		40340
Variance	840.5	653.7	450	0		448.6909
Std.Dev.	28.9914	25.5676	21.2132	0		21.1823
Std.Err.	20.5	11.4342	15	0		6.3867

Source	SS	df	MS	F	P
Treatment [between groups]	581.6091	3	193.8697	0.35	0.790720
Error	3905.3	7	557.9		
Ss/Bl					
Total	4486.9091	10			

BLACK MALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	2	5	2	2		11
$-\sum X$	69	194	106	156		525
-Mean	34.5	38.8	53	78		47.7273
$-\sum X^2$	3141	8398	6196	12296		30031
Variance	760.5	217.7	578	128		497.4182
Std.Dev.	27.5772	14.7547	24.0416	11.3137		22.3029
Std.Err.	19.5	6.5985	17	8		6.7246

Source	SS	df	MS	F	P
Treatment [between groups]	2636.8818	3	878.9606	2.63	0.131828
Error	2337.3	7	333.9		
Ss/Bl					
Total	4974.1818	10			

HISPANIC MALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	10	17	12	11		50
$-\sum X$	574	959	731	842		3106
-Mean	57.4	56.4118	60.9167	76.5455		62.12
$-\sum X^2$	37228	62907	51847	67300		219282
Variance	475.6	550.5074	665.1742	284.8727		537.4955
Std.Dev.	21.8083	23.4629	25.791	16.8782		23.1839
Std.Err.	6.8964	5.6906	7.4452	5.089		3.2787

Source	SS	df	MS	F	P
Treatment [between groups]	3083.1184	3	1027.7061	2.03	0.122807
Error	23254.1616	46	505.5253		
Ss/Bl					
Total	26337.28	49			

HISPANIC MALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	10	24	14	12		60
$-\sum X$	559	1352	818	826		3555
-Mean	55.9	56.3333	58.4286	68.8333		59.25
$-\sum X^2$	36225	88942	59046	61150		245363
Variance	552.9889	555.6232	865.4945	390.3333		588.6314

Std.Dev.	23.5157	23.5717	29.4193	19.7569		24.2617
Std.Err.	7.4363	4.8115	7.8626	5.7033		3.1322

Source	SS	df	MS	F	P
Treatment [between groups]	1427.9214	3	475.9738	0.8	0.499103
Error	33301.3286	56	594.6666		
Ss/Bl					
Total	34729.25	59			

HISPANIC MALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	10	17	12	11		50
$-\sum X$	32	55.3	37.309	36.859		161.468
-Mean	3.2	3.2529	3.1091	3.3508		3.2294
$-\sum X^2$	104.04	182.37	117.7077	125.0242		529.1419
Variance	0.1822	0.1551	0.1555	0.1516		0.1572
Std.Dev.	0.4269	0.3939	0.3944	0.3894		0.3965
Std.Err.	0.135	0.0955	0.1138	0.1174		0.0561

Source	SS	df	MS	F	P
Treatment [between groups]	0.3539	3	0.118	0.74	0.533653
Error	7.3496	46	0.1598		
Ss/Bl					
Total	7.7036	49			

ASIAN MALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	15	11	13	11		50
$-\sum X$	1223	918	1059	915		4115
-Mean	81.5333	83.4545	81.4615	83.1818		82.3
$-\sum X^2$	100515	77284	90129	78593		346521
Variance	57.1238	67.2727	321.7692	248.1636		160.3367
Std.Dev.	7.558	8.202	17.9379	15.7532		12.6624
Std.Err.	1.9515	2.473	4.9751	4.7498		1.7907

Source	SS	df	MS	F	P
Treatment [between groups]	41.1723	3	13.7241	0.08	0.970548
Error	7815.3277	46	169.8984		
Ss/Bl					
Total	7856.5	49			

ASIAN MALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	15	11	13	11		50
$-\sum X$	1043	761	1035	820		3659
-Mean	69.5333	69.1818	79.6154	74.5455		73.18
$-\sum X^2$	85181	56881	85503	64158		291723
Variance	904.1238	423.3636	258.4231	303.0727		488.9261
Std.Dev.	30.0687	20.5758	16.0755	17.409		22.1117

Std.Err.	7.7637	6.2038	4.4586	5.249		3.1271
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Source	SS	df	MS	F	P
Treatment [between groups]	934.2061	3	311.402	0.62	0.605632
Error	23023.1739	46	500.5038		
Ss/Bl					
Total	23957.38	49			

ASIAN MALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	15	11	13	11		50
$-\sum X$	48.146	37.874	42.3	35.98		164.3
-Mean	3.2097	3.4431	3.2538	3.2709		3.286
$-\sum X^2$	156.4967	131.6295	140.6822	120.392		549.2004
Variance	0.1401	0.1226	0.2537	0.2705		0.19
Std.Dev.	0.3743	0.3501	0.5037	0.5201		0.4359
Std.Err.	0.0966	0.1056	0.1397	0.1568		0.0616

Source	SS	df	MS	F	P
Treatment [between groups]	0.3746	3	0.1249	0.64	0.593163
Error	8.9359	46	0.1943		
Ss/Bl					
Total	9.3106	49			

NATIVE MALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total

N	0	0	1	2		3
$-\sum X$	0	0	47	142		189
-Mean	NaN	NaN	47	71		63
$-\sum X^2$	0	0	2209	11234		13443
Variance	NaN	NaN	NaN	1152		768
Std.Dev.	NaN	NaN	NaN	33.9411		27.7128
Std.Err.	NaN	NaN	NaN	24		16
Source		SS	df	MS	F	P
Treatment [between groups]		NaN	3	NaN	0	1.000000
Error		NaN	-1	NaN		
Ss/BI						
Total		1536	2			

NATIVE MALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	1	2		3
$-\sum X$	0	0	57	128		185
-Mean	NaN	NaN	57	64		61.6667
$-\sum X^2$	0	0	3249	8290		11539
Variance	NaN	NaN	NaN	98		65.3333
Std.Dev.	NaN	NaN	NaN	9.8995		8.0829
Std.Err.	NaN	NaN	NaN	7		4.6667
Source		SS	df	MS	F	P
Treatment [between groups]		NaN	3	NaN	0	1.000000
Error		NaN	-1	NaN		
Ss/BI						

Total 130.6667 2

NATIVE MALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	1	2		3
$-\sum X$	0	0	3.15	6.68		9.83
-Mean	NaN	NaN	3.15	3.34		3.2767
$-\sum X^2$	0	0	9.9225	22.3834		32.3059
Variance	NaN	NaN	NaN	0.0722		0.0481
Std.Dev.	NaN	NaN	NaN	0.2687		0.2194
Std.Err.	NaN	NaN	NaN	0.19		0.1267

Source	SS	df	MS	F	P
Treatment [between groups]	NaN	3	NaN	0	1.000000
Error	NaN	-1	NaN		
Ss/Bl					
Total	0.0963	2			

WHITE MALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	70	64	68	60		262
$-\sum X$	5215	4635	5097	4601		19548
-Mean	74.5	72.4219	74.9559	76.6833		74.6107
$-\sum X^2$	400687	351131	397129	364113		1513060
Variance	176.3696	245.3271	225.0577	191.4065		209.0816

Std.Dev.	13.2804	15.6629	15.0019	13.835		14.4597
Std.Err.	1.5873	1.9579	1.8193	1.7861		0.8933

Source	SS	df	MS	F	P
Treatment [between groups]	573.3297	3	191.1099	0.91	0.436686
Error	53996.9604	258	209.2905		
Ss/Bl					
Total	54570.2901	261			

WHITE MALE GRE V

<i>Data Summary</i>						
	Samples					Total
	1	2	3	4	5	
N	70	64	68	60		262
$-\sum X$	4597	4359	4970	4526		18452
-Mean	65.6714	68.1094	73.0882	75.4333		70.4275
$-\sum X^2$	333979	319841	383756	360938		1398514
Variance	465.0354	364.3212	306.0817	330.9616		379.2572
Std.Dev.	21.5647	19.0872	17.4952	18.1923		19.4745
Std.Err.	2.5775	2.3859	2.1216	2.3486		1.2031

Source	SS	df	MS	F	P
Treatment [between groups]	3912.241	3	1304.0803	3.54	0.015262
Error	95073.8812	258	368.5034		
Ss/Bl					
Total	98986.1221	261			

Tukey HSD Test

HSD[.05]=8.69; HSD[.01]=10.58

M1 vs M2 nonsignificant M1 vs M3 nonsignificant M1 vs M4 P<.05

M2 vs M3 nonsignificant M2 vs M4 nonsignificant M3 vs M4 nonsignificant

M1 = mean of Sample 1

M2 = mean of Sample 2 and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

WHITE MALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	70	64	68	60		262
$-\sum X$	228.97	212.5	225.907	207.088		874.465
-Mean	3.271	3.3203	3.3222	3.4515		3.3377
$-\sum X^2$	756.9439	714.67	760.9536	722.3314		2954.8989
Variance	0.1157	0.1445	0.156	0.1284		0.1388
Std.Dev.	0.3401	0.3801	0.395	0.3583		0.3726
Std.Err.	0.0407	0.0475	0.0479	0.0463		0.023

Source	SS	df	MS	F	P
Treatment [between groups]	1.1238	3	0.3746	2.75	0.043273
Error	35.1147	258	0.1361		
Ss/Bl					
Total	36.2385	261			

Tukey HSD Test

HSD[.05]=0.17; HSD[.01]=0.2

M1 vs M2 nonsignificant M1 vs M3 nonsignificant M1 vs M4 P<.05

M2 vs M3 nonsignificant M2 vs M4 nonsignificant M3 vs M4 nonsignificant

M1 = mean of Sample 1

M2 = mean of Sample 2 and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for

significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

DISABLED MALE GRE Q

Data Summary

	Samples					
	1	2	3	4	5	Total
N	0	0	1	5		6
$-\sum X$	0	0	47	360		407
-Mean	NaN	NaN	47	72		67.8333
$-\sum X^2$	0	0	2209	26796		29005
Variance	NaN	NaN	NaN	219		279.3667
Std.Dev.	NaN	NaN	NaN	14.7986		16.7143
Std.Err.	NaN	NaN	NaN	6.6182		6.8236

Source	SS	df	MS	F	P
Treatment [between groups]	NaN	3	NaN	0	1.000000
Error	NaN	2	NaN		
Ss/Bl					
Total	1396.8333	5			

DISABLED MALE GRE V

Data Summary

	Samples					
	1	2	3	4	5	Total
N	0	0	1	5		6
$-\sum X$	0	0	57	331		388
-Mean	NaN	NaN	57	66.2		64.6667
$-\sum X^2$	0	0	3249	23501		26750
Variance	NaN	NaN	NaN	397.2		331.8667
Std.Dev.	NaN	NaN	NaN	19.9299		18.2172

Std.Err.	NaN	NaN	NaN	8.9129		7.4371
Source		SS	df	MS	F	P
Treatment [between groups]		NaN	3	NaN	0	1.000000
Error		NaN	2	NaN		
Ss/Bl						
Total		1659.3333	5			

DISABLED MALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	1	5		6
$-\sum X$	0	0	3.15	16.873		20.023
-Mean	NaN	NaN	3.15	3.3746		3.3372
$-\sum X^2$	0	0	9.9225	57.1689		67.0914
Variance	NaN	NaN	NaN	0.0573		0.0543
Std.Dev.	NaN	NaN	NaN	0.2394		0.2329
Std.Err.	NaN	NaN	NaN	0.1071		0.0951

Source		SS	df	MS	F	P
Treatment [between groups]		NaN	3	NaN	0	1.000000
Error		NaN	2	NaN		
Ss/Bl						
Total		0.2713	5			

BLACK FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	6	11	8	11		36
$-\sum X$	262	410	377	559		1608
-Mean	43.6667	37.2727	47.125	50.8182		44.6667
$-\sum X^2$	11858	17724	20283	31869		81734
Variance	83.4667	244.2182	359.5536	346.1636		283.1429
Std.Dev.	9.136	15.6275	18.9619	18.6055		16.8268
Std.Err.	3.7298	4.7119	6.704	5.6098		2.8045

Source	SS	df	MS	F	P
Treatment [between groups]	1071.9735	3	357.3245	1.29	0.294638
Error	8838.0265	32	276.1883		
Ss/Bl					
Total	9910	35			

BLACK FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	6	11	8	11		36
$-\sum X$	249	442	460	743		1894
-Mean	41.5	40.1818	57.5	67.5455		52.6111
$-\sum X^2$	12797	24100	30722	54065		121684
Variance	492.7	633.9636	610.2857	387.8727		629.673
Std.Dev.	22.1968	25.1786	24.704	19.6945		25.0933
Std.Err.	9.0618	7.5916	8.7342	5.9381		4.1822

Source	SS	df	MS	F	P
Treatment [between groups]	5084.6919	3	1694.8973	3.2	0.036365
Error	16953.8636	32	529.8082		
Ss/Bl					
Total	22038.5556	35			

Tukey HSD Test

HSD[.05]=30.41; HSD[.01]=37.83

M1 vs M2 nonsignificant M1 vs M3 nonsignificant M1 vs M4 nonsignificant M2 vs M3
nonsignificant M2 vs M4 nonsignificant M3 vs M4 nonsignificant

M1 = mean of Sample 1

M2 = mean of Sample 2 and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

BLACK FEMALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	6	11	8	11		36
$-\sum X$	20.8	35.6	26.697	37.893		120.99
-Mean	3.4667	3.2364	3.3371	3.4448		3.3608
$-\sum X^2$	72.88	117.48	89.6508	131.3083		411.3191
Variance	0.1547	0.2265	0.0799	0.0774		0.1341
Std.Dev.	0.3933	0.476	0.2827	0.2782		0.3661
Std.Err.	0.1606	0.1435	0.1	0.0839		0.061

Source	SS	df	MS	F	P
Treatment [between groups]	0.3197	3	0.1066	0.78	0.513858
Error	4.3722	32	0.1366		
Ss/Bl					

Total 4.6919 35

HISPANIC FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	20	30	31	22		103
$-\sum X$	1069	1321	1429	1276		5095
-Mean	53.45	44.0333	46.0968	58		49.466
$-\sum X^2$	62411	71261	81647	82596		297915
Variance	277.5237	451.4816	525.8237	408.9524		449.8591
Std.Dev.	16.659	21.2481	22.9308	20.2226		21.2099
Std.Err.	3.7251	3.8794	4.1185	4.3115		2.0899

Source	SS	df	MS	F	P
Treatment [between groups]	3157.0047	3	1052.3349	2.44	0.068859
Error	42728.6263	99	431.6023		
Ss/Bl					
Total	45885.6311	102			

HISPANIC FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	20	30	31	22		103
$-\sum X$	975	1214	1343	1388		4920
-Mean	48.75	40.4667	43.3226	63.0909		47.767
$-\sum X^2$	58223	64106	80601	97134		300064
Variance	562.7237	516.5333	747.2925	455.4199		637.7491

Std.Dev.	23.7218	22.7274	27.3367	21.3406		25.2537
Std.Err.	5.3044	4.1494	4.9098	4.5498		2.4883

Source	SS	df	MS	F	P
Treatment [between groups]	7396.5987	3	2465.5329	4.23	0.007385
Error	57653.809	99	582.3617		
Ss/Bl					
Total	65050.4078	102			

Tukey HSD Test

HSD[.05]=17.9; HSD[.01]=21.9

M1 vs M2 nonsignificant M1 vs M3 nonsignificant M1 vs M4 nonsignificant M2 vs M3

nonsignificant M2 vs M4 P<.01

M3 vs M4 P<.05

M1 = mean of Sample 1

M2 = mean of Sample 2 and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

HISPANIC FEMALE GPA

Data Summary						
	Samples					
	1	2	3	4	5	Total
N	20	30	31	22		103
$-\sum X$	65.169	101.4	103.777	72.792		343.138
-Mean	3.2585	3.38	3.3476	3.3087		3.3314
$-\sum X^2$	215.946	346.68	352.2236	243.9666		1158.8162
Variance	0.1893	0.1361	0.1605	0.1485		0.1537
Std.Dev.	0.435	0.369	0.4006	0.3853		0.392
Std.Err.	0.0973	0.0674	0.072	0.0821		0.0386

Source	SS	df	MS	F	P
Treatment [between groups]	0.1968	3	0.0656	0.42	0.739049

Error	15.4768	99	0.1563
Ss/Bl			
Total	15.6736	102	

ASIAN FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	14	20	18	10		62
$-\sum X$	916	1400	1348	713		4377
-Mean	65.4286	70	74.8889	71.3		70.5968
$-\sum X^2$	62866	102836	105768	54809		326279
Variance	225.6484	254.5263	283.3987	441.3444		283.2282
Std.Dev.	15.0216	15.9539	16.8344	21.0082		16.8294
Std.Err.	4.0147	3.5674	3.9679	6.6434		2.1373

Source	SS	df	MS	F	P
Treatment [between groups]	717.613	3	239.2043	0.84	0.477495
Error	16559.3063	58	285.5053		
Ss/Bl					
Total	17276.9194	61			

ASIAN FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	14	20	18	10		62
$-\sum X$	930	1289	1321	769		4309
-Mean	66.4286	64.45	73.3889	76.9		69.5
$-\sum X^2$	64656	90509	104007	62211		321383

Variance	221.3407	391.2079	415.3105	341.6556		359.1393
Std.Dev.	14.8775	19.779	20.3792	18.4839		18.951
Std.Err.	3.9762	4.4227	4.8034	5.8451		2.4068

Source	SS	df	MS	F	P
Treatment [between groups]	1461.9437	3	487.3146	1.38	0.257928
Error	20445.5563	58	352.5096		
Ss/Bl					
Total	21907.5	61			

ASIAN FEMALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	14	20	18	10		62
$-\sum X$	44.937	64	59.93	35.68		204.547
-Mean	3.2098	3.2	3.3294	3.568		3.2991
$-\sum X^2$	145.7386	207.46	202.2105	128.4342		683.8433
Variance	0.1154	0.14	0.1575	0.1253		0.1478
Std.Dev.	0.3397	0.3742	0.3968	0.354		0.3844
Std.Err.	0.0908	0.0837	0.0935	0.112		0.0488

Source	SS	df	MS	F	P
Treatment [between groups]	1.0477	3	0.3492	2.54	0.065206
Error	7.9653	58	0.1373		
Ss/Bl					
Total	9.013	61			

NATIVE FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	2	1	1	2		6
$-\sum X$	152	49	49	108		358
-Mean	76	49	49	54		59.6667
$-\sum X^2$	11840	2401	2401	5904		22546
Variance	288	NaN	NaN	72		237.0667
Std.Dev.	16.9706	NaN	NaN	8.4853		15.397
Std.Err.	12	NaN	NaN	6		6.2858

Source	SS	df	MS	F	P
Treatment [between groups]	825.3333	3	275.1111	1.53	0.418713
Error	360	2	180		
Ss/Bl					
Total	1185.3333	5			

NATIVE FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	2	1	1	2		6
$-\sum X$	132	51	51	120		354
-Mean	66	51	51	60		59
$-\sum X^2$	9864	2601	2601	7922		22988
Variance	1152	NaN	NaN	722		420.4
Std.Dev.	33.9411	NaN	NaN	26.8701		20.5037
Std.Err.	24	NaN	NaN	19		8.3706

Source	SS	df	MS	F	P
Treatment [between groups]	228	3	76	0.08	0.964929
Error	1874	2	937		
Ss/Bl					
Total	2102	5			

NATIVE FEMALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	2	1	1	2		6
$-\sum X$	6.874	2.8	2.8	7.79		20.264
-Mean	3.437	2.8	2.8	3.895		3.3773
$-\sum X^2$	23.7643	7.84	7.84	30.3445		69.7888
Variance	0.1383	NaN	NaN	0.0024		0.2701
Std.Dev.	0.3719	NaN	NaN	0.0495		0.5197
Std.Err.	0.263	NaN	NaN	0.035		0.2122

Source	SS	df	MS	F	P
Treatment [between groups]	1.2097	3	0.4032	5.73	0.152184
Error	0.1408	2	0.0704		
Ss/Bl					
Total	1.3505	5			

WHITE FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	98	94	74	74		340
$-\sum X$	6296	6029	5012	5091		22428

-Mean	64.2449	64.1383	67.7297	68.7973		65.9647
$-\sum X^2$	430838	408725	357970	368931		1566464
Variance	271.6714	236.9377	253.5424	255.9447		256.6595
Std.Dev.	16.4825	15.3928	15.923	15.9983		16.0206
Std.Err.	1.665	1.5876	1.851	1.8598		0.8688

Source	SS	df	MS	F	P
Treatment [between groups]	1427.6978	3	475.8993	1.87	0.134399
Error	85579.8786	336	254.702		
Ss/Bl					
Total	87007.5765	339			

WHITE FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	98	94	74	74		340
$-\sum X$	6123	6148	5192	5395		22858
-Mean	62.4796	65.4043	70.1622	72.9054		67.2294
$-\sum X^2$	417411	433924	387412	416205		1654952
Variance	359.2625	342.1359	316.8501	313.4293		348.7378
Std.Dev.	18.9542	18.4969	17.8003	17.7039		18.6745
Std.Err.	1.9147	1.9078	2.0692	2.058		1.0128

Source	SS	df	MS	F	P
Treatment [between groups]	5544.6165	3	1848.2055	5.51	0.001051
Error	112677.4894	336	335.3497		
Ss/Bl					
Total	118222.1059	339			

Tukey HSD Test

HSD[.05]=7.33; HSD[.01]=8.9

M1 vs M2 nonsignificant

M1 vs M3 P<.05

M1 vs M4 P<.01

M2 vs M3 nonsignificant

M2 vs M4 P<.05

M3 vs M4 nonsignificant

M1 = mean of Sample 1

M2 = mean of Sample 2 and so forth.

HSD = the absolute [unsigned] difference between any two sample means required for significance at the designated level. HSD[.05] for the .05 level; HSD[.01] for the .01 level.

WHITE FEMALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	97	94	74	74		339
$-\sum X$	323.719	322.161	252.704	264.351		1162.935
-Mean	3.3373	3.4272	3.4149	3.5723		3.4305
$-\sum X^2$	1112.8369	1112.5013	871.4746	1018.2747		4115.0875
Variance	0.3384	0.0901	0.1166	1.0127		0.3718
Std.Dev.	0.5817	0.3001	0.3414	1.0064		0.6097
Std.Err.	0.0591	0.031	0.0397	0.117		0.0331

Source	SS	df	MS	F	P
Treatment [between groups]	2.3495	3	0.7832	2.13	0.096223
Error	123.3049	335	0.3681		
Ss/Bl					
Total	125.6544	338			

DISABLED FEMALE GRE Q

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	2	16		18
$-\sum X$	0	0	85	835		920
-Mean	NaN	NaN	42.5	52.1875		51.1111
$-\sum X^2$	0	0	4717	49461		54178
Variance	NaN	NaN	1104.5	392.2958		420.9281
Std.Dev.	NaN	NaN	33.234	19.8065		20.5165
Std.Err.	NaN	NaN	23.5	4.9516		4.8358

Source	SS	df	MS	F	P
Treatment [between groups]	NaN	3	NaN	0	1.000000
Error	NaN	14	NaN		
Ss/Bl					
Total	7155.7778	17			

DISABLED FEMALE GRE V

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	2	16		18
$-\sum X$	0	0	148	1072		1220
-Mean	NaN	NaN	74	67		67.7778
$-\sum X^2$	0	0	11600	75672		87272
Variance	NaN	NaN	648	256.5333		269.5948
Std.Dev.	NaN	NaN	25.4558	16.0167		16.4193
Std.Err.	NaN	NaN	18	4.0042		3.8701

Source	SS	df	MS	F	P
Treatment [between groups]	NaN	3	NaN	0	1.000000
Error	NaN	14	NaN		
Ss/Bl					
Total	4583.1111	17			

DISABLED FEMALE GPA

<i>Data Summary</i>						
	Samples					
	1	2	3	4	5	Total
N	0	0	2	16		18
$-\sum X$	0	0	5.824	54.453		60.277
-Mean	NaN	NaN	2.912	3.4033		3.3487
$-\sum X^2$	0	0	17.1219	187.5141		204.636
Variance	NaN	NaN	0.1624	0.1462		0.1638
Std.Dev.	NaN	NaN	0.4031	0.3824		0.4048
Std.Err.	NaN	NaN	0.285	0.0956		0.0954

Source	SS	df	MS	F	P
Treatment [between groups]	NaN	3	NaN	0	1.000000
Error	NaN	14	NaN		
Ss/Bl					
Total	2.7851	17			

Supplemental Figure 3. Chi-square test and Fischer's exact test

Domestic Male Students						
	Pre-Intervention			Post-Intervention		
	Applied	Offered Admission	Accepted Offer of Admission	Applied	Offered A	Accepted Offer of Admission
Majority Males	359	105	63	372	93	54
URM Males	120	23	12	177	109	18
Pre-Intervention vs Pre-Intervention	Chi-square = 5.06, p = 0.0797					
Post-Intervention vs Post-Intervention	Chi-square = 34.73, p = 0.00001					
Pre-Intervention vs Post-Intervention (majority)	Chi-square = 1.59, p = 0.452					
Pre-Intervention vs Post-Intervention (URM)	Chi-square = 22.3, p = 0.000016					
	Fischer: applied vs offered (p < 0.0001), offered vs accepted (p < 0.0001), applied vs accepted (p = 0.21)					
	Fischer: applied vs offered (p < 0.0001), offered vs accepted (p = 0.0067), applied vs accepted (p = 1)					
Domestic Female Students						
	Pre-Intervention			Post-Intervention		
	Applied	Offered Admission	Accepted Offer of Admission	Applied	Offered A	Accepted Offer of Admission
Majority Females	383	138	78	491	159	71
URM Females	174	51	30	318	69	44
Pre-Intervention vs Pre-Intervention	Chi-square = 1.48, p = 0.477					
Post-Intervention vs Post-Intervention	Chi-square = 6.25, p = 0.0439					
Pre-Intervention vs Post-Intervention (majority)	Chi-square = 3.92, p = 0.141					
Pre-Intervention vs Post-Intervention (URM)	Chi-square = 2.51, p = 0.285					
	Fischer: applied vs offered (p = 0.013), offered vs accepted (p = 0.137), applied vs accepted (p = 0.823)					

Supplemental Table 1. Example Scoring Sheet

Applicant Name	Research Experience	Rec Letters	Personal Statement	Quantitative Measures	Overall Score
Applicant 1	3	3	3	3	3
Applicant 2	3	4	3	5	4