College of Sciences
Briefing Paper
May 21, 2007

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College of Sciences Briefing Paper
Submitted by Grady Price Blount, Dean, May 2007

I arrived at ASU as the new Dean of Sciences 10 months ago. It was one of the best decisions of my professional life. ASU has extremely high potential and is only waiting for a new leadership paradigm. The College of Sciences is one of the more successful academic units at ASU. Faculty and staff in the college are anticipating change and are ready to participate. For most, there is a palpable sense that ASU is about to reinvent itself. Like their institution, the Science faculty have been meticulous and cautious. I have learned to appreciate the local story about the guy who was pulled over by the highway patrol for doing 65 in a 70 MPH zone.

My preliminary observations are:

- ASU's first doctoral program will be in Physical Therapy.
- The College functions as loose confederation of mostly autonomous departments. Prior to my arrival there was not even a College Mission statement. As a result, there is little *esprit de corps*.
- Teaching is emphasized almost exclusively. Unpaid overloads are common. Existing university policies encourage, but do not reward, this situation.
- That said, the teaching culture is poorly informed about student learning. Although there are exceptions, assessment is generally held in low regard.
- Physical facilities range from dangerous (Cavness building) to outstanding (e.g. Vincent and Science III buildings).
- Health Science programs (Nursing and Physical Therapy) are extremely robust. But physical space for these rapidly growing programs is critical.
- The teacher education programs in Biology, Mathematics and Physics are recognized as among the best in the state.
- Agriculture, particularly the new *Natural Resource Management* program, is currently growth-limited by insufficient personnel resources.
- Initiative is stifled by an antiquated university policy system which is not in touch with market forces (e.g. the "step system").
- Excellence in extramural funding has not been a priority; primarily due to a non-supportive policy structure.

Major recommendations:

- There is intense political and demographic pressure to grow the health care professions in Texas. As such, I recommend creation of a *School of Public Health* including Nursing, Physical Therapy, and Clinical Laboratory Science. This would be a transition to a College of Health Professions.
- Support ongoing initiatives to rewrite ASU policies and increase extramural funding.
- Begin planning to replace or rebuild the Cavness building.
- Find new physical facilities to support the DPT (Doctor of Physical Therapy) degree.
- Support major initiatives in *Geographic Information Science* to coincide with the transfer of the Department of Computer Science into the College of Sciences.

College of Sciences
5-Year Enrollment Summary (AY2002-AY2006):

Total Lower Division Headcount Enrollment: 67,754
Total Lower Division SCH Production: 149,915

Total Upper Division Headcount Enrollment:.....16,422
Total Upper Division SCH Production:.....39,164

Total Graduate Headcount Enrollment:.....…3,179
Total Graduate SCH Production:.....10,084

Overall Headcount Enrollment:.....87,355
Overall SCH Production:.....199,163

Average Class Sizes:
Lower Division .....…….28.4
Upper Division.....….....19.9
Graduate.....….....10.5
Overall College Average.....…….24.8

College of Sciences degrees awarded: 2002-2007

	Associate's	Bachelor's	Master's
Agriculture	-	189	58
Biology	-	152	26
Chemistry	-	54	-
Mathematics	-	92	-
Nursing	343	100	26
Physical Therapy	-	-	60
Physics	-	42	-
TOTAL	**343**	**629**	**170**

College of Sciences
5-Year Enrollment Detail by Department (AY2002-AY2006): Detail 1

		LOWER LEVEL				UPPER LEVEL					MASTERS LEVEL						TOTALS	
	DEPARTMENT	SEC	# STU	SCH		SEC	IND SEC	# STU	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	STU	SCH
SSI_02	Agriculture						3		11	36	1	3	5	10	43	1	5	79
	Biology	11	286	572		2	2	27	2	72	0	2	0	7	21	13	313	665
	Chem & Biochm	6	149	299		3	1	53	1	129						9	202	428
	Mathematics	15	281	717		3	1	59	1	180						18	340	897
	Nursing	6	82	123		3	1	43	15	87		3		7	24	9	125	234
	Physical Therapy										2	2	24	22	112	2	24	112
	Physics	5	78	178		3	1	52	1	139						8	130	317
SSII_02	Agriculture						1		6	18		1		5	15			33
	Biology	8	185	368		5	2	42	3	105		3		11	36	13	227	509
	Chem & Biochm	7	165	339		2	2	44	2	95						9	209	434
	Mathematics	13	256	636		3		31		93						16	287	729
	Nursing	7	100	150		1		14		42		2		4	15	8	114	207
	Physical Therapy										6	2	60	21	204	6	60	204
	Physics	5	69	155		1		33		99						6	102	254
F02	Agriculture	16	331	668		19	3	514	8	986	5	4	73	16	191	40	918	1845
	Biology	56	2002	4004		24	6	498	7	1069	6	6	37	12	121	86	2537	5194
	Chem & Biochm	28	865	1747		9	2	204	6	529						37	1069	2276
	Mathematics	85	2675	6390		7	4	153	4	471						92	2828	6861
	Nursing	22	280	1142		10	6	133	57	425	6	3	35	18	105	38	448	1672
	Physical Therapy										16	1	170	10	493	16	170	493
	Physics	32	1479	3073		9	10	183	13	540						41	1662	3613
S03	Agriculture	9	210	428		24	2	589	6	1037	3	4	47	15	185	36	846	1650
	Biology	57	1749	3496		21	3	369	13	852	2	4	18	11	91	80	2136	4439
	Chem & Biochm	23	489	979		12	10	164	10	370						35	653	1349
	Mathematics	76	2064	4860		7	3	126	6	396						83	2190	5256
	Nursing	14	262	1081		8	3	96	27	318	7	5	39	23	141	29	397	1540
	Physical Therapy										14		143		386	14	143	386
	Physics	31	1258	2644		8	2	175	8	481						39	1433	3125

College of Sciences
5-Year Enrollment Detail by Department (AY2002-AY2006): Detail 2

		LOWER LEVEL				UPPER LEVEL					MASTERS LEVEL						TOTALS	
	DEPARTMENT	SEC	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	STU	SCH
SSI_03	Agriculture					2		5	15	1	2	9	8	51	1	9	66
	Biology	9	270	540	2	1	29	1	80		1		2	6	11	299	626
	Chem & Biochm	6	133	274	3	3	45	3	118						9	178	392
	Mathematics	14	324	765	3	1	28	1	87						17	352	852
	Nursing	6	102	153	3		67		129		2		6	23	9	169	305
	Physical Therapy									2	3	16	20	96	2	16	96
	Physics	6	140	288	3	1	42	1	115						9	182	403
SSII_03	Agriculture					2		6	16		2		9	27			43
	Biology	7	180	360	3		45		113		1		2	6	10	225	479
	Chem & Biochm	7	162	330	2	4	27	4	65						9	189	395
	Mathematics	13	271	660	3	1	40	1	123						16	311	783
	Nursing	6	108	162	1		15		45		2		13	44	7	123	251
	Physical Therapy									5	2	65	19	214	5	65	214
	Physics	5	105	239	1	2	33	2	103						6	138	342
F03	Agriculture	10	222	424	25	2	571	8	1112	3	4	48	11	142	38	841	1678
	Biology	54	1789	3580	23	5	449	12	982	5	3	38	8	131	82	2276	4693
	Chem & Biochm	28	888	1798	9	10	208	10	527						37	1096	2325
	Mathematics	86	2596	5865	8	3	137	3	420						94	2733	6285
	Nursing	14	317	1371	9	6	151	67	458	5	7	42	29	126	28	510	1955
	Physical Therapy									12	1	142	11	398	12	142	398
	Physics	37	1310	2729	8	10	180	10	525						45	1490	3254
S04	Agriculture	12	240	567	17	5	464	22	851	3	4	34	13	148	32	738	1566
	Biology	59	1686	3372	17	5	348	15	859	2	3	19	6	78	78	2053	4309
	Chem & Biochm	23	545	1093	12	8	182	8	397						35	727	1490
	Mathematics	83	2073	4662	7	4	174	5	537						90	2247	5199
	Nursing	16	321	1355	7	3	102	34	315	9	5	49	18	147	32	472	1817
	Physical Therapy									12		135		356	12	135	356
	Physics	35	1164	2416	9	3	173	21	496						44	1337	2912

College of Sciences
5-Year Enrollment Detail by Department (AY2002-AY2006): Detail 3

		LOWER LEVEL			UPPER LEVEL					MASTERS LEVEL					TOTALS		
	DEPARTMENT	SEC	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	STU	SCH
SSI_04	Agriculture					3		5	14		3		7	24			38
	Biology	9	278	556	3	2	42	2	122		3		3	6	12	320	684
	Chem & Biochm	6	106	212	3	3	39	3	101						9	145	313
	Mathematics	16	276	594	2	1	16	1	51						18	292	645
	Nursing	1	11	33	3	1	38	12	75		4		10	38	4	49	146
	Physical Therapy									2	2	28	22	116	2	28	116
	Physics	6	129	261	3	1	35	1	100						9	164	361
SSII_04	Agriculture					4		8	27		2		5	15			42
	Biology	7	226	452	3	3	47	3	127		2		3	7	10	273	586
	Chem & Biochm	7	153	313	2	1	23	2	49						9	176	362
	Mathematics	15	297	666	3	1	47	1	144						18	344	810
	Nursing	1	15	45	1		12		36	1	3	3	8	41	3	30	122
	Physical Therapy									5	2	60	22	230	5	60	230
	Physics	4	106	220	1	1	32	2	102						5	138	322
F04	Agriculture	11	309	585	23	6	518	16	979	7	3	69	4	155	41	896	1719
	Biology	55	1982	3964	21	8	390	8	839	6	5	38	9	96	82	2410	4899
	Chem & Biochm	30	825	1668	8	7	200	7	495						38	1025	2163
	Mathematics	90	2649	5943	9	3	161	3	492						99	2810	6435
	Nursing	22	591	1965	9	6	158	57	591	7	4	44	7	153	38	793	2709
	Physical Therapy									17	1	212	8	556	17	212	556
	Physics	40	1497	3095	10	10	159	10	455						50	1656	3550
S05	Agriculture	8	203	313	28	3	683	15	1185	5	3	55	8	148	41	941	1646
	Biology	59	1751	3504	19	7	355	8	854	4	4	32	8	107	82	2138	4465
	Chem & Biochm	24	579	1168	12	4	177	7	397						36	756	1565
	Mathematics	86	2097	4659	6	5	128	6	402						92	2225	5061
	Nursing	21	424	1641	12	5	159	40	497	8	7	44	29	164	41	627	2302
	Physical Therapy									16		215		569	16	215	569
	Physics	33	1266	2643	10	8	190	8	519						43	1456	3162

College of Sciences
5-Year Enrollment Detail by Department (AY2002-AY2006): Detail 4

		LOWER LEVEL			UPPER LEVEL					MASTERS LEVEL					TOTALS		
	DEPARTMENT	SEC	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	IND SEC	# STU	# STU	SCH	SEC	STU	SCH
SSI_05	Agriculture					4		7	21		7		16	25			46
	Biology	9	301	604	2	1	35	1	90		1		1	3	11	336	697
	Chem & Biochm	6	125	251	2	3	39	3	88						8	164	339
	Mathematics	17	278	633	2		23		69						19	301	702
	Nursing	4	46	138	3	2	44	8	132	1	6	7	10	47	8	97	317
	Physical Therapy									2	2	34	31	158	2	34	158
	Physics	6	140	284	2	1	40	1	123						8	180	407
SSII_05	Agriculture					3		3	9		2		7	21			30
	Biology	11	314	628	3	1	28	1	77		2		3	9	14	342	714
	Chem & Biochm	6	95	191	2	4	33	4	75						8	128	266
	Mathematics	16	287	600	3	1	50	1	153						19	337	753
	Nursing	4	42	106	3		41		123		4		7	19	7	83	248
	Physical Therapy									3	1	63	17	194	3	63	194
	Physics	4	107	224	4	3	55	3	159						8	162	383
F05	Agriculture	9	278	509	30	5	698	10	1314	5	4	63	6	154	44	1039	1977
	Biology	55	1951	3904	22	13	485	17	1077	3	5	26	8	89	80	2462	5070
	Chem & Biochm	29	894	1802	9	5	262	5	658						38	1156	2460
	Mathematics	90	2684	6213	8	3	156	3	477						98	2840	6690
	Nursing	23	470	1800	11	4	161	6	570	10	4	56	6	184	44	687	2554
	Physical Therapy									14	1	228	14	648	14	228	648
	Physics	37	1464	3052	11	6	171	6	475						48	1635	3527
S06	Agriculture	13	388	714	21	3	653	28	1136	4	2	46	8	136	38	1087	1986
	Biology	59	1746	3492	17	8	361	11	854	4	3	32	4	96	80	2139	4442
	Chem & Biochm	24	572	1158	12	5	205	5	437						36	777	1595
	Mathematics	88	1971	4488	7	4	143	10	459						95	2114	4947
	Nursing	20	425	1761	11	4	153	37	488	9	9	54	25	183	40	632	2432
	Physical Therapy									17	1	257	1	688	17	257	688
	Physics	34	1376	2848	10	7	188	8	508						44	1564	3356
	TOTALS w/S02	2,385	67,754	149,915	823	351	16,422	915	39,164	303	199	3,179	718	10,084	3,511	87,355	199,163

Overview: Department of Agriculture
Submitted by Gil Engdahl

Highlights:

- 6,000 acre research facility (MIR).
- New *Food Safety and Product Development* lab.
- Research-intensive and highly-overworked faculty: five year total includes 43 presentations and 44 peer-reviewed articles.
- Five year total of research funds: $462,184
- Five year total of gifts: $92,100
- Endowed gifts (FSPD lab) $250,000
- Nationally-known program with heavy community and industry involvement.

Major Needs:

- Additional faculty to meet burgeoning student demand; particularly in wildlife management.
- Additional professional specialist to support lab activities.
- Obtain funding to support a *Meats Lab* manager position.
- *Calan gates* for sheep and cattle research.
- Additional teaching space for large classes.

Goals:

- Maintain growth of department through recruiting and retention of high quality faculty and students.
- Maintain community and industry involvement.
- Increase graduate enrollment in new Natural Resource Management program.

Overview: Department of Biology
Submitted by Kelly McCoy

Highlights

- The faculty are highly dedicated and talented teachers with numerous awards for teaching including three of the last four *ASU Teaching Excellence Awards*.
- Biology has an active and productive research program with numerous student projects. In the last five years our faculty and students made 105 presentations at scientific meetings and produced 30 peer-reviewed publications. During this time we received 12 external grants totaling more than $200,000.
- The admission rate for ASU students into health professional schools (pre-med, dental, optometry) is consistently ~50%, far higher than the state average.
- The *Angelo State Natural History Collections* comprises systematic collections of birds, mammals, amphibians, reptiles, and plants. The catalogs of these collections were computerized in 2000 with NSF support ($154,929). The collections are heavily used in teaching and research and are frequently toured by school and community groups.
- The ASU Chapter of Tri-Beta (undergraduate honor society) is an active and vital part of the program. This organization has received numerous awards including winning the *Bertholf Award* (top chapter in the nation) five times in the past 20 years.

Major Needs:

- Increase stagnant M&O budget.
- The Cavness Science Building is old and renovations are needed to many classrooms, laboratories, and faculty offices.
- At least two additional tenure-track faculty members are needed; primarily in molecular biology. Additional faculty members would support efforts to increase research and extramural funding opportunities.
- Capitol equipment supporting basic microbiology and molecular biology is needed.

Goals - Short Term:

- Initiate internal changes to support the Medical Technology Program (Clinical Laboratory Science) and the new *Ecology and Evolutionary Biology* degree.
- Continue growth of M.S. in Biology with Emphasis in Science Teaching program.
- Develop/expand the Dual Enrollment program in cooperation with SAISD.
- Increased participation in outreach to area public school science teachers.

Goals - Long Term:

- Pursue local internships for students in Medical Technology.
- Institute a departmental seminar series.
- Revise graduate and undergraduate curricula.

Overview: Department of Chemistry and Biochemistry
Submitted by George Shankle

Highlights:

- Starting 11th year of $25,000/year Robert A. Welch Foundation Departmental Research Grant.
- 27 student research posters in last five years at national and regional American Chemical Society meetings.
- 54 chemistry or biochemistry graduates, with two Presidential Award winners and one College of Sciences outstanding student in the last five years.
- All local 4th graders participate in our annual *Science Days* orientation (in collaboration with Biology, Math, and Physics).
- Student affiliate chapter of the American Chemical Society chapter received one honorable mention and two commendable ratings from national ACS.
- *Hands-on* experience for students using chemical instrumentation.

Needs:

- Replace major instrumentation over 20 years old. Estimated cost: $350,000-500,000.
- Continue and increase funding for *Special Academic Scholarship* program.

Goals:

- Short-term: Hire lab coordinator for chemistry labs, especially freshman level labs.
  Fill tenure-track vacancy created by recent resignation.
- Long term: Continue *Welch Foundation* funding.
  Establish 3+2 program between Angelo State chemistry department and an established chemical engineering program, so that a student could graduate with a chemistry degree from ASU and a chemical engineering degree from the established program.
- Overall: Establish dual credit chemistry courses both with SAISD and other surrounding school systems. Increase recruiting efforts for chemistry and biochemistry majors.

Overview: Department of Mathematics
Submitted by Paul Swets

Highlights:

- 100% pass rate for mathematics teacher candidates: Since 1998, 120 consecutive students who have completed our program passed the TExES certification examination on the first try.
- Two *Teaching Excellence Award* winners and one runner-up since 2001.
- Three *Presidential Award* winners and six *Distinguished Students in the College of Sciences* since 1998.
- High success rate for our students going into graduate schools, including Harvard Law School, Texas Tech, North Texas, Baylor, and others.

Needs:

- Better system of routine technology refreshes.
- Increased budget to expand math lab hours and retain lab workers.
- More office space for growing faculty ranks.
- Dedicated tutoring lab space.
- Better placement procedures for freshman and developmental programs.
- Sabbatical/release time opportunities for faculty; particularly those with extramural funding.

Short-Term Goals:

- Increase upper-division course enrollments.
- Increase numbers of majors and minors.
- Offer additional course in discrete and computational mathematics.

Long-Term Goals:

- Add a minor in computational mathematics.
- Increase number of tenure-track faculty.
- Build program depth to support additional degree options.

Overview: Department of Nursing
Submitted by Leslie Mayrand

Highlights:

- NLNAC-accredited programs in Associate of Applied Science in Nursing, online RN-BSN degree, and MSN degree with *Clinical Nurse Specialist* and *Nurse Educator* options including RN-MSN options and certificate options.
- Extramural funding the last five years > $900,000

Accomplishments:

- First completely online RN-BSN program in the state
- All MSN offerings (Clinical Nurse Specialist and Nurse Educator option) completely online allowing access to students across the state and nation
- Home of one of the original HRSA-funded school-based clinics; now in its 13th year of operation
- State-of-the art high fidelity simulation center to open in Fall 2007
- Developed and implemented a state-of-the-art computerized testing center during the 2006-2007 academic year
- Currently maintain a 100% pass rate on the national CNS certification exam

Needs:

- Need institutional software update to *Blackboard Enterprise*.
- Explore more external funding opportunities (and work with Development Office) to support the various projects and activities of the department.
- Need to bring faculty/department head salaries more in line with advanced practice salaries in order to attract faculty needed for program expansion (e.g. FNP program).

Short Term Goals:

- Develop and implement a generic baccalaureate program (Fall 2008)
- Develop and implement a Family Nurse Practitioner (FNP) option (Fall 2008)
- Expand the school-based clinic project to a Family Wellness Center
- Conduct a successful NLNAC site visit (Fall 2007)

Long Term Goals:

- Support the establishment of a School (College) of Nursing and Health Sciences

Overview: Department of Physical Therapy
Submitted by Shelly Weise

Highlights:

- Over 60 alumni since first graduating class in 2002. Seventy-six percent are still in Texas; half of that count in rural West Texas.
- 100% of our alumni employed; 100% have passed the licensure exam
- 94% of the Class of 2006 passed the *national physical therapy licensure exam* on first attempt; national average is 86% first time pass rate.
- The physical therapy program with be the first doctoral program at ASU, with a MPT to DPT transition by 2009.

Needs:

- Realignment of Physical Therapy and Nursing into their own College.
- DPT transition:
    - More classroom/lab space for increased student numbers
    - Startup funding
- Faculty Concerns:
    - Faculty recruitment
    - Workload tabulations and concerns for enhanced scholarly productivity.
    - Establish a clinical practice on campus
    - Re-evaluate the Professional Specialist track
    - More office and lab space for faculty
- Realignment/addition of administrative staffing in physical therapy.
    - Clinical Education needs
    - Professional Health Program needs
        - Accreditation
        - MPT to DPT transition phase

Short Term Goals (1-2 years):

- More classroom/lab space to accommodate both activities during one class time (e.g. a room the size of the dance studio in the CHP building).
- Hire one additional faculty member in the Neuro specialty area.
- Start fund raising for the DPT transition.
- Add an administrative staff person to assist in the clinical education component.
- Re-align workload tabulations for graduate faculty in the health sciences (particularly, allow more weight for lab/clinical instruction).

Long term goals (3-5 years):

- Complete fundraising for the DPT transition.
- Begin DPT program in 2009.
- Hire an additional faculty member for DPT instruction/implementation.
- Establish a clinical practice on campus.
- Re-assess/modify the Professional Specialist rank with consideration of the DPT addition at ASU.

Overview: Department of Physics
Submitted by Andy Wallace

The Department of Physics has 10 faculty members (8.44 FTE, 6 tenured) degrees in geology, physics, and science education. B.S. degree programs support applied physics, physics, and secondary certification. An Earth Science minor started in 2005. The department supports a large service component with about 1400 non-majors enrolled each long semester. Our five-year average graduation rate is 8 (vs. the national average of 4 and the national median of 3). Fourteen percent of our recent graduates are Hispanic-American (vs. the national average of 3%). About half of our graduates continue into graduate school. The other half gain employment in defense, oil and gas, semiconductor, or the telecommunication industry.

Highlights:

- One of twenty-one undergraduate programs nationally identified as exemplary; the only one in Texas.
- Five consecutive *Society of Physics Students Outstanding Chapter* Awards
- In 2006, the department ranked 4th statewide in generating 713 upper division physics semester credit hours (SCH): (University of Texas-Austin generated 2624 SCH , Texas Tech University generated 796 SCH, and Texas A&M-College Station generated 763 SCH).

Needs:

- Complete search process for a Stockroom Technician and Lab Coordinator.
- Upgrade remaining non-tech classrooms for multimedia instruction.
- Replace antiquated laboratory equipment in physics and geology.
- Upgrade planetarium star projector and lighting system.

Short-term Goals:

- Develop dual-credit astronomy, geology, and physical science classes for SAISD.
- Complete two faculty searches: one in geology and one in physics.
- Recruit more students for the Earth Science minor.

Long-term Goals:

- Add *Astronomy* minor
- Add *Engineering Physics* major
- Add *Geology* major