DETERMINING WHAT IT COSTS TO TEACH A COLLEGE COURSE

Lawrence J. Redlinger and Stanley L. Gordon
THE UNIVERSITY OF TEXAS AT DALLAS

Presented at 2005 AIR Forum, San Diego
June 1, 2005

TEXAS HIGHER EDUCATION COORDINATING BOARD (THECB) UNIVERSITY COST STUDY

- **Formally announced March 13, 2003 via memo to Presidents and Chancellors, Texas Public Universities Chief Financial Officers, and Texas Public Universities from Commissioner of Higher Education, Don W. Brown, at the behest of the CB and University Formula Advisory Committee (FAC)**
- **Project tied to state formula funding (approximately $3.9 billion for the biennium for academic institutions)**
- **Ad Hoc Formula Matrix Cost Study Committee comprised of FAC members developed methodology for verifying relative weights comprising the Instruction and Operations formula**
- **Institutions asked to provide data on a "one-shot" basis to be used in validating relative weights**
- **Memo supplied spreadsheet templates defining data collection**
- **At UTD, memo was received by Office of Senior Vice President of Business Affairs but project ended up in Office of Strategic Planning and Analysis**
- **Results of study to assist legislature in making more informed decisions regarding allocation of higher education funding**

UNIVERSITY COST STUDY RECAP

- **Data is for Instruction Only with Separate "Cost" Data Sets for Each Semester (fall, spring, summer) and Five Financial Spreadsheets**
- **Study Comprised of Two Parts (due Jun. 30 each year):**
  - **Part 1 – Courses, SCH, faculty salaries and teaching load credits (TLC)**
  - **Part 2 – Financial Statement data (a.k.a. Annual Financial Report (AFR), faculty salaries reconciled between parts 1 and 2**
- **Completed Rolling Three Fiscal Years (FY) with Recent Years Weighted More Heavily by THECB:**
  - **FY 2001-2002 Sep. 1, 2001 – Aug. 31, 2002**
  - **FY 2002-2003 Sep. 1, 2002 – Aug. 31, 2003**
  - **FY 2003-2004 Sep. 1, 2003 – Aug. 31, 2004**
- **Study is Now On-Going Every Year ("one-shot" effort in FY 2001-2002 gave way to annual update of formula funding matrix)**
- **Some Texas Publics (research-oriented) Lose Funding Under New Matrix and are Lobbying to Scrap this Methodology in Favor of New Higher Ed Funding Scheme**

INSTRUCTION AND OPERATIONS FORMULA
($51.25 per weighted SCH for 2004-2005 biennium)

Fund Code	Funding Category	Lower Division	Upper Division	Masters	Doctoral	Special Professional
01	Liberal Arts	1.00	1.96	3.94	12.04	0.00
02	Science	1.53	3.00	7.17	19.29	0.00
03	Fine Arts	1.85	3.11	6.51	17.47	0.00
04	Teacher Ed	1.28	1.96	3.23	9.95	0.00
05	Agriculture	2.05	2.54	6.64	16.37	0.00
06	Engineering	3.01	3.46	8.20	21.40	0.00
07	Home Economics	1.58	2.12	4.34	10.79	0.00
08	Law	0.00	0.00	0.00	0.00	3.22
09	Social Services	1.64	1.84	5.80	11.92	0.00
10	Library Science	1.45	1.52	4.22	12.26	0.00
11	Veterinary Medicine	0.00	0.00	0.00	0.00	16.72
12	Vocational Training	1.45	2.59	0.00	0.00	0.00
13	Physical Training	1.36	1.36	0.00	0.00	0.00
14	Health Services	2.87	3.36	6.47	15.98	0.00
15	Pharmacy	4.00	4.64	9.00	19.11	9.00
16	Business Administration	1.41	1.59	4.59	13.91	0.00
17	Optometry	0.00	0.00	5.46	19.12	7.00
18	Teacher Ed Practice	2.43	2.57	0.00	0.00	0.00
19	Technology	1.99	2.56	6.61	0.00	0.00
20	Nursing	4.91	5.32	6.49	16.32	0.00
21	Developmental Ed	1.00	0.00	0.00	0.00	0.00

I & O FORMULA NUMERICAL EXAMPLE (Engineering - Fall 2004)

	LD	UD	M	D
Raw SCH	4,117	7,177	7,528	1,875
Weights	3.01	3.46	8.20	21.40
Weighted SCH	12,392	24,834	61,730	40,125
Dollars @ $51.25	$635,090	$1,272,743	$3,163,663	$2,056,406

Fall 2004 Total = $7,127,902

- **State must appropriate funds**
- **State must have budgeted available funds to cover appropriation**
- **State must allocate 100 cents on the dollar to fund budgeted amount**

MEMBERS OF FORMULA MATRIX COST STUDY COMMITTEE

UNIVERSITY OF NORTH TEXAS

TEXAS A&M UNIVERSITY

UNIVERSITY OF TEXAS – PAN AMERICAN

LAMAR UNIVERSITY

UNIVERSITY OF TEXAS AT AUSTIN

TEXAS STATE UNIVERSITY

THECB STAFF
Educational Data Center (EDC) – Part 1
Finance Division – Part 2

DATA REQUIREMENTS – PART 1
(COST FILES)

Item and Data Field Name	Item and Data Field Name
1 FICE CODE	19 CIP CODE
2 SEMESTER	20 FUND CODE
3 YEAR	21 ENROLL-UNDERGRAD LOWER
4 DEPARTMENT CODE	22 ENROLL-UNDERGRAD UPPER
5 INSTRUCTOR ID	23 ENROLL-MASTERS
6 LAST NAME	24 ENROLL-DOCTORAL
7 FIRST INITIAL	25 ENROLL-SPECICAL PROFESSIONAL
8 MIDDLE INITIAL	26 RANK
9 TEACHING LOAD CREDITS	27 TENURE
10 TERM TOTAL SALARY	28 RESPONSIBILITY FACTOR
11 TERM OVERLOAD SALARY	29 TOTAL-TLC
12 SUBJECT PREFIX	30 SECTION SALARY
13 COURSE NUMBER	31 SECTION TLC RATIO
14 SECTION	
15 COMPOSITE/CROSS LISTED	
16 COURSE SCH	
17 COURSE LEVEL	
18 TYPE OF INSTRUCTION	

DATA REQUIREMENTS – PART 2
(FINANCE SPREADSHEETS FY 2004)

	Tab 1 - Information Sheet ($38,023,463)
	Tab 2 – Schedule C-2, Expenses by Object, Fund Group, Function from FY 2004 AFR ($137,883,010)
	Tab 3 – Teaching Assistant (TA) Worksheet ($634,797)
	Tab 4 – Departmental Operating Expense (DOE) Worksheet ($55,833,828)
	Tab 5 – DOE Reconciliation Worksheet ($44,025,719 vs. $35,470,743)

- **Academic Support**
- **Institutional Support**
- **Student Services**

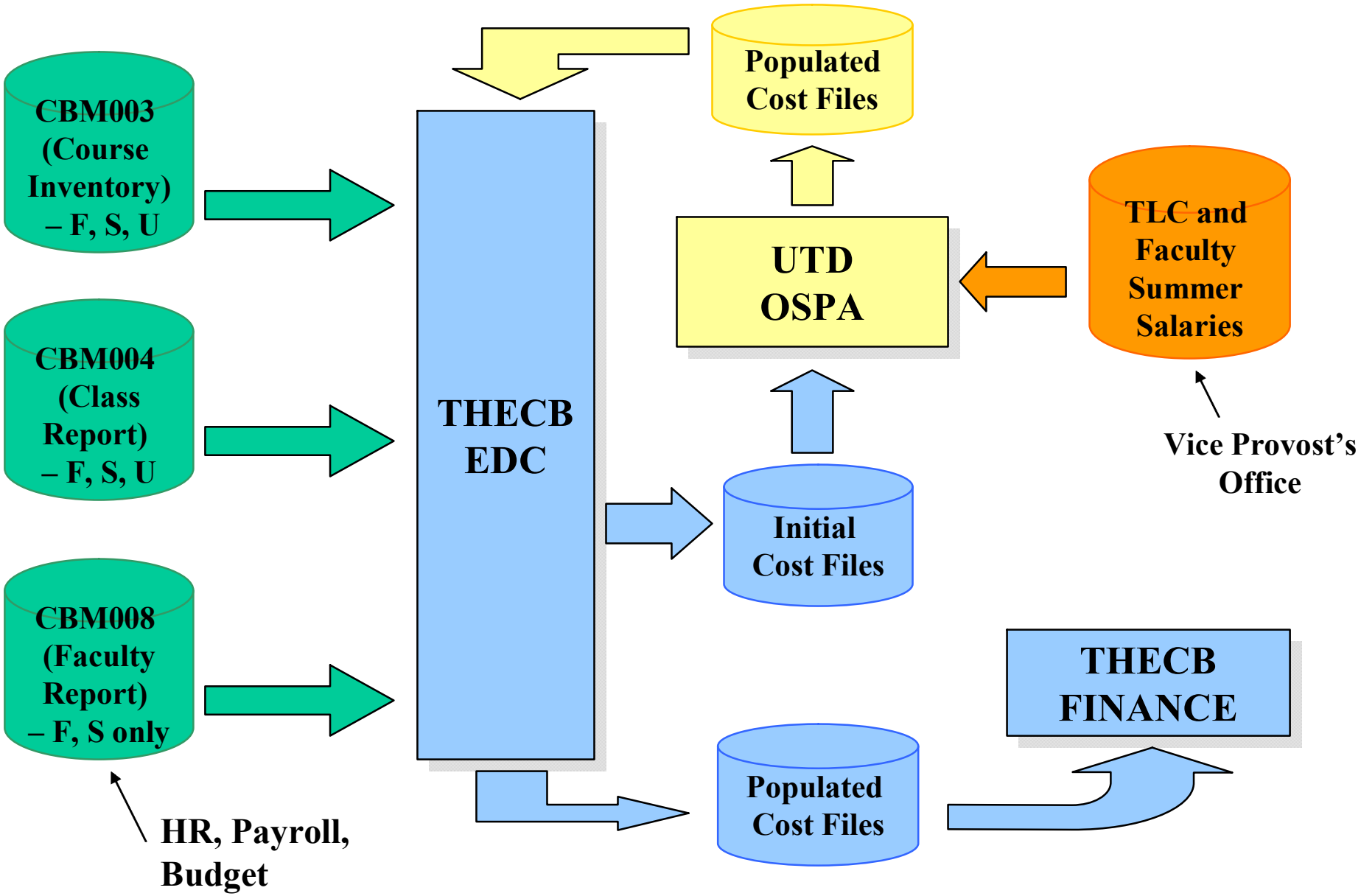
- **Sub-Total Operating Expense, Capital Outlays**
- **E&G, Designated, Restricted**
- **Instruction, Research, Academic Support, Student Services, Institutional Support**

Faculty involved in instruction but not teaching in the classroom

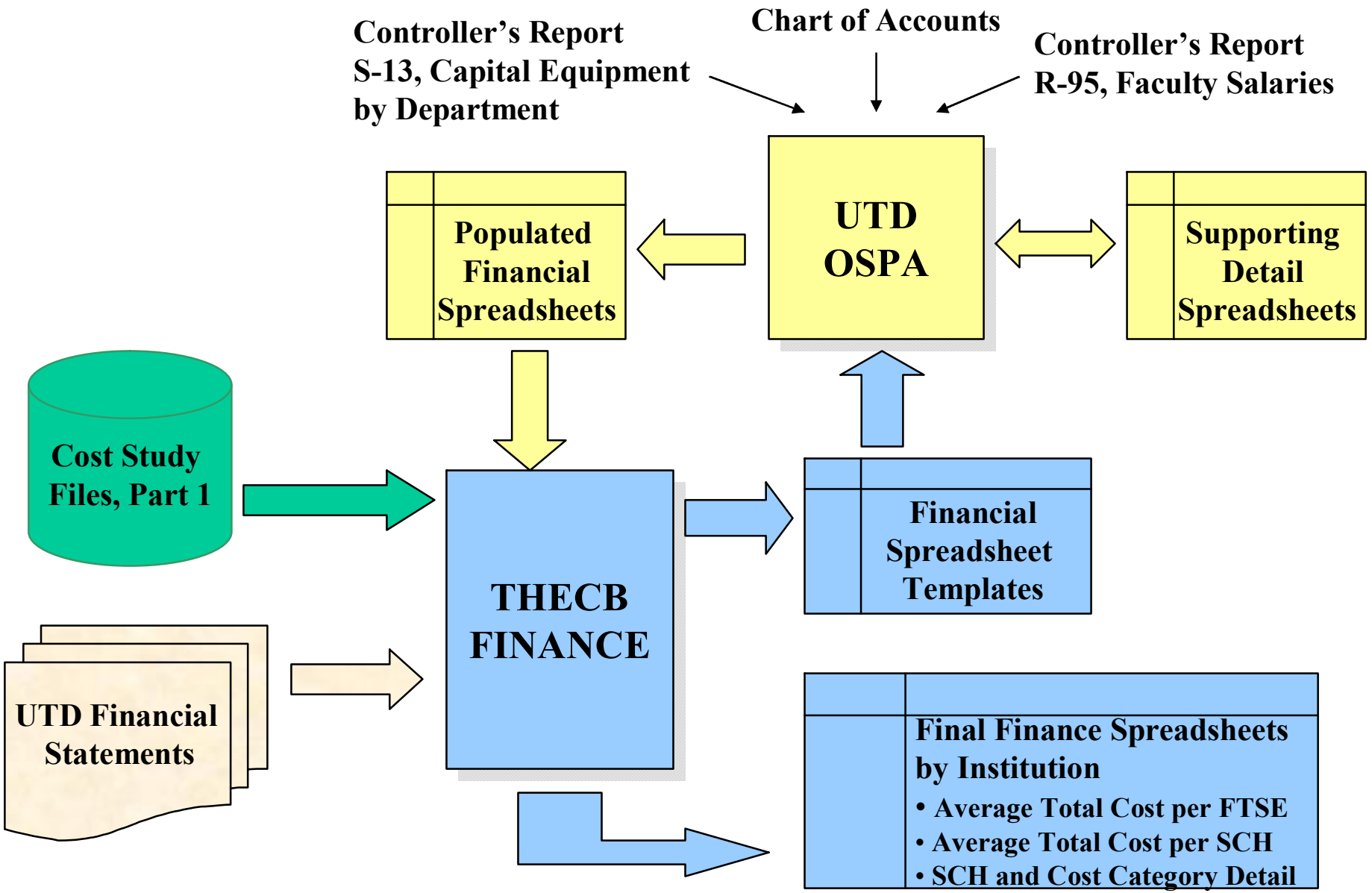
Research Capital Equipment, all other DOE Expenses (instruction capital equipment, instruction and research expenses less faculty salaries)

Reconcile instructional faculty salaries between Financial Statement (Part 2) and Cost Study (Part 1) = $37.8m vs. $37.6m or 0.6%

DATA STRUCTURE OF COST STUDY – PART 1



DATA STRUCTURE OF COST STUDY – PART 2



TEACHING LOAD CREDIT (TLC) SYSTEM

- **Teaching Load Credits are used in the university cost study to allocate total semester faculty salaries to courses at the section level**
- **The TLC System is required by the Board of Regents to ensure faculty members "make teaching load" but details of implementation are left to each institution**
- **The TLC System is a point-based system that is a function of semester credit hours (SCH) with extra points accruing for graduate classes (greater preparation required), higher enrollment, and administrative decisions (unique course)**
- **Teaching Load Credits are highly correlated with SCH but can be smaller than, equal to, or greater than SCH given the nature of a course, enrollment, level, variable-credit classes, and other factors including TLC overrides to handle nuances in the data**

COST FILE SAMPLE DATA

Department	Instructor ID	Last Name	First Initial	Middle Initial	Rank	Tenure	Term Salary
Engineering & Computer Science	123456789	Engineer	V	S	Senior Lecturer III	Not on Tenure Track	$31,051

Subject Prefix	Course Number	Section	TLC	Term Salary	Course SCH	CIP Code	Fund Code	TLC Ratio	Section Salary
EE	4367	001	3.0	$31,051	3.0	14.1001.00	06	0.4545	$14,113
EE	4382	014	0.6	$31,051	3.0	14.1001.00	06	0.0910	$ 2,825
EE	4390	501	3.0	$31,051	3.0	14.1001.00	06	0.4545	$14,113
			6.6					1.0000	$31,051

ENROLLMENT				SEMESTER CREDIT HOURS (SCH)			
UG-Lower	UG-Upper	Masters	Doctoral	UG-Lower	UG-Upper	Masters	Doctoral
2	29	0	0	6	87	0	0
0	1	0	0	0	3	0	0
0	11	0	0	0	33	0	0

INSTRUCTION AND OPERATIONS FORMULA

$53.15 per Weighted SCH (CB recommended 2006-2007)

$55.12 per Weighted SCH (Rate increased by actual SCH Growth of 3.7%)

Fund Code	Funding Category	Lower Division	Upper Division	Masters	Doctoral	Special Professional
01	Liberal Arts	1.00	1.86	4.07	10.89	0.00
02	Science	1.66	3.00	7.63	19.72	0.00
03	Fine Arts	1.63	2.74	5.91	12.31	0.00
04	Teacher Ed	1.34	1.91	2.89	8.41	0.00
05	Agriculture	2.06	2.62	7.14	13.43	0.00
06	Engineering	2.43	3.28	7.21	18.35	0.00
07	Home Economics	1.32	1.97	3.70	8.47	0.00
08	Law	0.00	0.00	0.00	0.00	3.39
09	Social Services	2.01	2.30	4.59	12.10	0.00
10	Library Science	1.28	1.33	3.59	8.85	0.00
11	Veterinary Science	0.00	0.00	0.00	0.00	15.44
12	Vocational Training	2.14	2.52	0.00	0.00	0.00
13	Physical Training	1.35	1.30	0.00	0.00	0.00
14	Health Services	2.10	2.80	6.10	12.75	0.00
15	Pharmacy	2.45	3.98	13.75	22.72	6.37
16	Business Administration	1.24	1.61	3.95	16.59	0.00
17	Optometry	0.00	0.00	5.46	19.12	7.00
18	Teacher Ed Practice	1.75	2.19	0.00	0.00	0.00
19	Technology	1.93	2.46	5.59	0.00	0.00
20	Nursing	3.58	4.96	5.89	13.49	0.00
21	Developmental Ed	1.00	0.00	0.00	0.00	0.00

COST STUDY RESULTS FY 2004

Number	Institution	Average Cost per FTSE
1	UT Austin	$19,575
2	UT Brwnsvll	$13,341
3	TAMU	$12,925
4	U of H	$12,216
5	TAMU G	$11,721
6	UT Dallas	$11,583
7	UH V	$11,300
8	TAMU T	$10,898
9	TAMU I	$10,514
10	Tech	$10,484
11	Sul Ross	$10,384
12	PVAMU	$10,356
13	TAMU K	$10,226
14	TSU	$9,482
15	UH CL	$9,244
16	UT Tyler	$9,164
17	TWU	$9,046
18	UT El Paso	$9,038
19	TAMU CC	$8,864
20	UNT	$8,745

Number	Institution	Average Cost per FTSE
21	UT PB	$8,235
22	UT Arlngtn	$8,199
23	TSU-SM	$8,182
24	Angelo	$7,849
25	UT SA	$7,588
26	Lamar	$7,397
27	WTAMU	$7,191
28	TAMU C	$7,142
29	SFAU	$7,057
30	Tarleton	$7,042
31	UT Pan Am	$6,985
32	Sam Houstn	$6,648
33	Midwstrn	$6,431
34	UH D	$6,071
	Average Statewide Cost	$10,552

UTD FORMULA FUNDING SCENARIO

Fund Code	Funding Category	04U, 04F, 05S Lower Division	Upper Division	rate per SCH= $53.1500 Masters	Doctoral	Special Professional	Total
			Dollars				
1	Liberal Arts	$2,799,304	$4,210,009	$1,451,943	$2,659,023	$0	$11,120,280
2	Science	$1,897,100	$4,536,193	$2,238,956	$2,668,508	$0	$11,340,757
3	Fine Arts	$776,332	$705,291	$491,906	$429,860	$0	$2,403,389
4	Teacher Ed	$39,955	$772,642	$51,150	$0	$0	$863,747
5	Agriculture	$0	$0	$0	$0	$0	$0
6	Engineering	$1,004,822	$2,924,071	$6,454,815	$4,405,441	$0	$14,789,149
7	Home Economics	$0	$0	$0	$0	$0	$0
8	Law	$0	$0	$0	$0	$0	$0
9	Social Services	$0	$0	$0	$0	$0	$0
10	Library Science	$0	$0	$0	$0	$0	$0
11	Veterinary Science	$0	$0	$0	$0	$0	$0
12	Vocational Training	$0	$0	$0	$0	$0	$0
13	Physical Training	$45,491	$0	$0	$0	$0	$45,491
14	Health Services	$46,209	$374,729	$2,153,112	$1,295,691	$0	$3,869,740
15	Pharmacy	$0	$0	$0	$0	$0	$0
16	Business Administration	$526,391	$2,695,588	$6,245,369	$1,387,006	$0	$10,854,355
17	Optometry	$0	$0	$0	$0	$0	$0
18	Teacher Ed Practice	$0	$50,983	$0	$0	$0	$50,983
19	Technology	$0	$0	$0	$0	$0	$0
20	Nursing	$0	$0	$0	$0	$0	$0
21	Developmental Ed	$22,429	$0	$0	$0	$0	$22,429
	Total	$7,158,033	$16,269,505	$19,087,251	$12,845,530	$0	$55,360,319