

**SRI notes on the cost matrices**  
**August 27, 2012**

The NSHE proposed model documentation says, regarding discipline clusters and weights:

*The proposed model includes an instructional matrix developed by the National Center for Higher Education Management System (NCHEMS) (See Appendix A for Discipline Clusters and Weights). The instructional matrix is divided into eleven discipline clusters that are assigned 3 weights for various course levels (e.g. lower division, upper division, master's, doctoral) using data from cost studies conducted in Texas, Illinois, Ohio and Florida. These are states that have successfully used cost studies in formula funding.*

*Using NSHE's existing instructional taxonomy that includes the two-digit Classification of Instructional Programs (CIP) for all state-supported courses delivered across the System, NCHEMS mapped the existing CIP categories to the appropriate discipline clusters for the purpose of assigning weights to the completed credit hours generated. The table of discipline clusters and weights denotes the specific CIP prefixes that fall within each discipline cluster and the corresponding weight NCHEMS assigned to the cluster.*

*This matrix assigns weights based on a student's progression to degree completion (e.g. upper division is weighted more than lower division, etc.) and will further provide for funding based on the discipline cluster as recommended by NCHEMS (e.g. clinical and science, technology, engineering and math (STEM) fields will have greater weights than liberal arts).*

In SHEEO's Four-State Cost Study<sup>1</sup> of Florida, Illinois, New York (SUNY), and Ohio it appears that data was collected directly from these states:

*The analysis consisted of examining state data from public baccalaureate granting institutions on total student credit hours, cost per student credit hour, and total cost of instruction by each available discipline, and for the sum of all available disciplines, for each of the four cost study states (Florida, Illinois, New York-SUNY, and Ohio).*

We have found the Illinois and Ohio; however it is not in the simple format of \$/student credit hour or weightings. We have not been able to find the Florida data publically. The SHEEO study does not refer to the Texas cost study or program weightings. The presentation reviews the cost studies of OH, FL, NY, and IL data. In a subsequent presentation, three of these cost studies are applied to Nevada.

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[http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.sheeo.org%2Fpcn%2Fuploads%2FSHEEO\\_Four\\_State\\_Cost\\_Study.pptx&ei=eHs7UK3MBMrH6AHq54DgAg&usg=AFQjCNGiCADJEw6miqWQ6\\_PP5Ar2enTKrw](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.sheeo.org%2Fpcn%2Fuploads%2FSHEEO_Four_State_Cost_Study.pptx&ei=eHs7UK3MBMrH6AHq54DgAg&usg=AFQjCNGiCADJEw6miqWQ6_PP5Ar2enTKrw)

## Application: Nevada



- **Process, Part 1:** Create costing “matrix” and table of relative weights
  - ✦ A “matrix” of *average* cost per student credit hour (C/SCH) was created
    - Data from CIP states (FL, IL, OH)
    - Sorted by discipline and instructional level
    - $(\text{Sum of Total Costs})/(\text{Sum of Total Credits}) = \text{Average C/SCH}$
  - ✦ A *table of relative weights* was created from this “matrix” (lowest C/SCH set to 1.0)
- **Process, Part 2:** Apply table of relative weights to Nevada data
  - ✦ Relative weights were multiplied by Nevada’s actual Credit Hours by discipline and level
  - ✦ Revenues per weighted credit hour were calculated
    - Using average for 3 states (FL, OH, IL)
    - For each state
  - ✦ Result was funding per weighted credit hour

It is important to note the Illinois 4-year schools and Florida 4-year schools do not use funding formulas, and so their cost study data is not used formally in funding decisions. In addition, Texas program weights ultimately used in the formula are set by the legislature, but are based on the cost study described below.<sup>2</sup>

In attempts to recreate the base of the NSHE weighting, we pulled the data for 2007 from the tables at the end of the SHEEO report.<sup>3</sup> It appears this is only data for 4-year institutions. In addition, this data did not include data for the following CIP codes used in the NSHE proposed matrix:

- 12. Personal & Culinary Services
- 28. ROTC course
- 29. Military technologies
- 32. Basic Skills
- 46. Construction Trades
- 47. Mechanic Repair Technologies/Technicians
- 48. Precision Production
- 49. Transportation & Materials Moving
- 99. Honors

<sup>2</sup> Texas Legislative Budget Board. *Financing Higher Education in Texas*. January 2011. Page 7.

<sup>3</sup> Conger, Sharmila Basu, Alli Bell, and Jeff Stanley. “Four-State Cost Study.” *SHEEO* Updated Sept. 2010. P. 16.

We calculated ratios for each state using these data using the method as described below to obtain the figure below. This is slightly different than the method described in the slide, but enables comparisons of ratios within states (see appendix for the tables from both methods).

1. For *each state*, the cost per credit hour was divided by the lower level cost per credit hour for Psychology. This resulted in a matrix of ratios (or weightings) by discipline and level for each state.
2. Next, weightings were averaged across the resulting IL, OH, and FL matrices along with the TX program weights<sup>4</sup> for each program and level.
3. Next, the weightings for the CIP codes under the major discipline cluster were averaged to create the same ratios for each discipline cluster by level, as the NSHE proposal does.
4. Finally, all weightings were divided by the lower level discipline weighting for the Liberal Arts Cluster to normal all weights to that value.

The weights are reported at the end of the memo.

	Averages (OH, IL, FL, TX)				NV proposed			
	Lower	Upper	Masters	Doctoral	Lower	Upper	Masters	Doctoral
<b>Liberal Arts, Math, Languages, other</b>	1.00	1.54	3.24	4.84	1	2	4	5
<b>Business</b>	1.02	1.42	2.41	7.49	1	2	4	6
<b>Education</b>	1.16	1.41	2.27	4.77	1.5	2.0	2.5	5.0
<b>Services</b>	0.87	1.16	2.56	4.65	1.5	2	3	4
<b>Visual and Performing Arts</b>	1.30	2.01	4.15	4.71	1.5	2.5	5	5
<b>Trades/Tech</b>					2	2.5		
<b>Sciences</b>	1.24	2.07	4.41	5.88	2	3	5	8
<b>Law</b>	1.24	1.48	3.03	4.31	2	2	4	4
<b>Engineering/Architecture</b>	1.58	2.18	3.63	4.89	2	3	5	8
<b>Health</b>	1.06	1.65	3.53	5.98	2	2	5	6

Only Texas and Ohio maintain current cost studies used in their funding formula.(on the mechanics please refer to the next section.) Both states have extremely detailed procedures for reporting cost data. Both of the states base their cost per student credit hour on annual expenses reported by each department as a function of discipline codes. Each discipline expenses are divided by student credit hours. Illinois collects cost data from each institution as a function of CIP code for public information in the same basic fashion as Ohio and Texas. It is unknown how Florida implements their cost study.

<sup>4</sup> The Texas program weights are for their General Academic Institutions (where psychology is already 1). *Texas Higher Education Coordinating Board – General Academic Institution – Program Funding Estimation Tool.* [www.thecb.state.tx.us/reports/Docfetch.cfm?Docid=2291&Format=XLS](http://www.thecb.state.tx.us/reports/Docfetch.cfm?Docid=2291&Format=XLS) sheet “CIP”, where the weights for the 6-digit CIP codes were averaged for every 2-digit CIP code.

## Details about the states

### Florida

Florida's formula for their four-year universities has not been used since FY2007-08 due to the decline in available state revenue. Appropriations have been made in a "base plus" methodology, though the "plus" has been a minus.<sup>5</sup>

#### *College System*<sup>6</sup>

Florida's model for allocating funds within the Florida College System uses a Instruction component is calculated by the class size multiplied by credit hour load multiplied by facility salary rates for each college and each instructional program and discipline reported in the Division's Annual Cost Analysis. The Instructional and Academic Support Committee assigned a direct instructional support cost category for each instructional discipline based on the idea that some disciplines require more support than others. The Committee identified three categories of support: 1-low, 2-medium, and 3-high. Instructional support costs in this part of the Funding Model represent direct instructional support costs such as non-faculty personnel, current expenses, laboratory expenses, and capital items used in the classroom and laboratory.

This calculation is a part of a larger formula that is used to calculate the Relative Allocation Index is the result of a comparison of the current funding level to the Funding Model calculations. Each college's Funding Model calculated state dollars is compared to its current funded amount. The difference is the calculated increase / decrease in state support. Each college's share of the overall increase/decrease in state support is the Relative Allocation Index. Each college's appropriation is loosely tied to the cost of course delivery.

### Illinois

Higher education funding in Illinois is appropriated annually by the General Assembly and allocated through direct operating support, indirect operating support, institutional grant programs, and student financial aid programs. Public higher education institutions receive most of their funding through direct operating support, most of which is unrestricted and can be used for various operating purposes. Specific operations funding is also appropriated for activities such as adult basic education, workforce preparation programs, and technical education.

Illinois' public four-year institutions each prepare a budget, which will typically include various factors including salary support, new facility operations and maintenance funding, increases in energy costs, and new program requests. The Illinois Board of Higher Education may make additional recommendations for these budgets, but the Governor and the General Assembly have the final say over actual funding levels. The allocation is determined using a "base plus" method.<sup>7</sup>

The Illinois Board of Education does a "cost study" every year but it is NOT used in a funding formula. The following is excerpted from IL documentation:

<sup>5</sup> State University System of Florida Board of Governors. *2012-2013 Allocation Summary and Workpapers: Education and General*. Page 11, 14, and [http://www.flbog.edu/about/budget/allocation\\_summary.php](http://www.flbog.edu/about/budget/allocation_summary.php)

<sup>6</sup> Florida College System, Budget Office. *2012-2013 Resource Allocation Funding Model*.

<sup>7</sup> Matt Berry, Illinois Board of Higher Education. Personal Communication, May 2012.

*The Discipline Unit Cost Study provides a detailed analysis of costs for instruction, organized research, and public service activities at each public university in Illinois. It helps identify those activities, which contribute to differences in overall costs among these institutions, and it helps assure that the allocation of state resources reflects the most important institutional priorities. In addition, the Discipline Unit Cost Study provides the basis for the Comparative Cost Study, which is used in the development of budget recommendations by the Board of Higher Education. The Comparative Cost Study compares each public university's instructional costs per credit hour for each academic discipline and level of instruction to the weighted average for all public universities. This analysis then accounts for differences in the mix of academic programs among institutions.*

*The Discipline Unit Cost Study provides an analysis of each university's costs for instruction, organized research, and public service. The data reported in the study are based on the Faculty Activity Analysis. The Faculty Activity Analysis distributes costs for faculty salaries over the primary functions of instruction, organized research, and public service based on the proportion of each employee's time assigned to these activities. Faculty salaries assigned to instruction are then allocated to the categories of direct instruction, indirect instruction, and departmental research based on the proportion of time assigned to these activities in the Faculty Activity Analysis. Faculty salaries are allocated to direct instruction based on the proportion of credit hours taught in that discipline and the level of student enrollment in each course.*

*Support costs are then allocated to the primary functions of instruction, organized research, and public service and to each academic discipline and level of instruction. Total costs for overheads unique to the function of instruction, student services, and independent operations are allocated to each academic discipline and level of instruction based on the credit hours for that discipline and level of instruction. The costs for all other support activities are distributed based on the proportion of the cumulative costs at the previous step unless these costs can be directly related to a specific functional activity or level of instruction. Support costs are allocated to the primary functions of instruction, organized research, and public service in the following order:*

- Departmental Overhead*
- College Overhead*
- Overhead Unique to a Function*
- Academic Support*
- Student Services*
- Independent Operations*
- Institutional Support*
- Operation and Maintenance of the Physical Plant*

*Costs are allocated to the primary functions of instruction, organized research, and public service and to the various cost assignment categories for each academic discipline and level of instruction. In order to provide these data, each institution completes the attached table (Form A) for each discipline. Costs per credit hour are calculated by dividing the costs associated with each discipline and level of instruction by the respective credit hours.*

IL cost study uses 1990 CIP codes. This data is available publically, but is very messy.

*Community Colleges*

Illinois does use a unit cost study for calculating estimated need for their community colleges. The *Unit Cost Study* is an annual project involving the direct participation of all public community colleges in Illinois. Each college submits basic data on course offerings, enrollments, and costs to the Illinois Community College Board (ICCB) staff, who in turn check the data for consistency with credit hour claims and financial reports and then compile the various reports of the *Unit Cost Study*. The *Unit Cost Study* also provides the basic cost information for determining the credit hour grant rates that are the basis for state financial support to public community colleges. Cost data submitted consists of end-of-year unaudited financial data. A separate report is submitted after the completion of the audited annual financial statements reconciling unit cost data to audited data.<sup>8</sup>

Full instructional unit cost, which comprises net instructional costs, other costs (the chargeback costs of sending students to other community colleges), building remodeling and renovation costs, and building depreciation costs. Full instructional unit cost represents the total cost of the instruction function within each college.

The ICCB staff produces a cost per student credit hour as a function of CIP codes. The raw data is available publically, but is very messy.

## Texas

According to the Texas Legislature Primer on Higher Education, program cost are calculated using annual reports:

*SCH is weighted by discipline (e.g., nursing is weighted more than liberal arts) and by level (i.e., lower and upper division, masters, doctoral, and professional). For instance, a lower division liberal arts course receives a weight of 1.0. A doctoral level liberal arts course receives a weight of 9.29. A nursing lower division course receives a weight of 1.94. A doctoral nursing course receives a weight of 10.64. Beginning with the 2006–07 GAA, the basis for the weights per discipline was shifted to an aggregation of actual costs based on institutions Annual Financial Reports. Currently, the Coordinating Board uses a rolling three year average to adjust the weights each biennium.*<sup>9</sup>

Texas has a higher education working group that reviews its expenditure study (appears to be more recently in 2011). This working group has 10 members.

In 2009, the Higher Education Coordination Board, HECB, preformed an in-depth cost study over Fiscal Years 2006, 2007, and 2008, and published a cost study document and a 2009 presentation on the study, which can be found on their website.<sup>10</sup> The following is from the “[GAI Expenditure Study Overview](#)” document:<sup>11</sup>

*The relative weights calculation includes all funds, which reconcile to the institutions’*

<sup>8</sup> Illinois Community College Board. Highlights Of The Fiscal Year 2011 Unit Cost Report (Unrestricted Costs Only) For Illinois Public Community Colleges. <http://www.iccb.org/reports.finance.html>

<sup>9</sup> Texas Legislative Budget Board. *Financing Higher Education in Texas*. January 2011. Page 7.

<sup>10</sup> <http://www.theccb.state.tx.us/index.cfm?objectid=4EA741D3-C76D-FBC5-04F664C233E8802B>

<http://www.theccb.state.tx.us/reports/PDF/1897.PDF?CFID=32062563&CFTOKEN=92674145>

<sup>11</sup> <http://www.theccb.state.tx.us/reports/pdf/2185.pdf?CFID=32062563&CFTOKEN=92674145>

*Annual Financial Reports (AFRs). The study allocates these funds by the operating expense elements: instruction, research, academic and institutional support, and student services. Academic and institutional support and student services are allocated as reported in the Annual Financial Reports. Instruction and research elements are combined and distributed between salaries and departmental operating expenses.*

*The study allocates the National Association of College and University Business Officers (NACUBO) elements to levels of instruction and disciplines using the specific allocation methodologies for each category. Teaching salaries include the portion related to teaching and teaching assistant salaries. The methodology identifies faculty-teaching salaries using teaching load credits (TLC) reported on the class report. The TLCs represent the portion of a faculty member's time spent teaching. Institutions complete surveys to report teaching assistant salaries. The remaining salaries are categorized as departmental operating expense.*

*Academic support expenses, which closely align with salaries, are allocated by level and discipline according to the percent distribution of faculty salary expenses. Institutional support and student services are allocated to the 5 levels using institution-specific headcounts and to the 20 disciplines by institution-specific SCHs. Departmental operating expenses (DOE) are allocated to the appropriate academic discipline and level based on the institutions' internal budget designations. The five allocation categories are summed by discipline and level and divided by the corresponding statewide SCHs to create expense per SCH rates. These rates are divided by the undergraduate lower-level liberal arts rate to establish relative weights.*

Texas currently has two published weighting. First, the one included in the final report are the weighted used in the 2011 Appropriations act. Texas HECB has also published relative weighting for the academic year ending in August 31, 2011 in posted excel tools.

Texas calculates cost at the six level CIP code. NSHE's weighting and student credit hour calculations on the two level CIP code. For this comparison, SRI averaged the Texas cost for each CIP code, since it is our understanding that all courses classified under that two-digit CIP code will be funded at the discipline cluster weight. Except for remedial education, which should be classified under CIP code 32, but is noted by system representatives are included in the liberal arts cluster. Zero weights were removed for the purpose of averaging.

## Ohio

Ohio uses a funding formula for their lower, upper, and master's classes. Doctoral hours are not funded through the SSI formula, but are funded through a doctoral set-aside established by the Graduate Funding Commission. This is scheduled to change in the 10<sup>th</sup> year of the model to 25% research grant activity, 25% quality measure, and 50% degrees awarded.

For the cost-based portion of Ohio's formula, Ohio collects cost data based on actual operating expenditures per student credit hours, which are aggregated into standardized full-time equivalent student units. In determining the average cost for the Fiscal Year 2012-2013 biennium, the calculation is based on data for FY 2004, FY 2005, FY 2006, FY 2007, FY 2008 and

FY 2009. The resulting average is adjusted for inflation. STEM, graduate classes, and at-risk students are then weighted preferentially.<sup>12</sup>

The costs that are allocated in Ohio's resource allocation model are the actual expenses reported by the campuses at the end of each fiscal year. All of these costs are allocated to some combination of subject and level of the various course sections offered by the campus in some term of the fiscal year. These costs then are converted to a per student full-time equivalent (FTE) basis and aggregated together for all public colleges and universities in the state. The statewide average cost per student FTE for each combination of subject and level of any course section offered by any campus of a public college or university becomes the basis of state instructional subsidy for instruction in that subject at that level.<sup>13</sup>

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<sup>12</sup> Ohio Board of Regents. *State Share of Instruction Handbook: Providing the Methodology for Allocating State Share of Instruction Funds for FY 2012 and FY 2013 For Use by: University Main Campuses*. <http://www.ohiohighered.org/sites/default/files/uploads/financial/ssi/HANDBOOK%20UM.pdf>.

<sup>13</sup> <http://regents.ohio.gov/hei/RA/RAspecifications.html>



## Appendix

Cost per Student Credit Hour - 2007		Florida				Ohio				Illinois			
Discipline Clusters		Florida				Ohio				Illinois			
		Lower	Upper	Grad 1	Grad 2	Lower	Upper	Grad 1	Grad 2	Lower	Upper	Grad 1	Grad 2
05. Area, Ethnic, Cultural & Gender Studies		145	378	985	958	273	374	925	1053	314	511	661	1679
09. Communication, Journalism and related programs		169	247	679	799	252	389	1153	1282	221	293	614	753
16. Foreign Languages, Literature and Linguistics		221	263	564	632	281	384	941	1308	190	246	499	542
19. Family and Consumer Sciences/Human Sciences		113	159	842	789	244	305	1433	1628	183	245	502	568
23. English Language & Literature/Letters		244	250	603	562	273	380	930	997	204	266	518	547
24. Liberal Arts & Sciences, General Studies and Humanities		291	440	520	375	430	618	1277	1188	456	487	719	855
25. Library Science		182	187	323	608	113	1212	539		506	1014	511	901
27. Mathematics & Statistics		162	313	769	960	264	361	990	1,394	193	277	518	727
28. Reserve Officer Training Corps													
29. Military Technologies													
30. Multi/Interdisciplinary Studies		243	322	118	1129	397	584	901	1226	200	172	301	435
38. Philosophy & Religious Studies		178	272	952	755	270	361	1082	1302	186	240	451	640
42. Psychology and Applied Psychology		88	214	667	768	238	343	793	1,025	152	241	516	781
45. Social Sciences		125	233	726	860	257	366	907	1,216	171	231	502	801
54. History		125	233	726	860	257	366	907	1,216	171	231	502	801
99. Honors Curriculum and Other													
44. Public Administration & Social Service Professions		210	301	405	1149	310	375	479	747	248	268	449	634
52. Business Management, Marketing & related support services		132	214	438	1,341	289	388	662	2,389	235	337	580	1,177
13. Education		207	256	448	833	359	370	578	978	229	287	380	780
31. Parks, Recreation, Leisure & Fitness Studies		124	187	369	484	353	395	866	1271	152	207	402	651
12. Personal & Culinary Services													
43. Security and Protective Services		124	180	547	909	239	303	507	719	184	197	403	836
50. Visual & Performing Arts		254	390	820	865	307	517	1,130	1,047	298	422	733	749



42. Psychology and Applied Psychology	1.00	2.43	7.58	8.73	1.00	1.44	3.33	4.31	1.00	1.59	3.39	5.14
45. Social Sciences	1.42	2.65	8.25	9.77	1.08	1.54	3.81	5.11	1.13	1.52	3.30	5.27
54. History	1.42	2.65	8.25	9.77	1.08	1.54	3.81	5.11	1.13	1.52	3.30	5.27
99. Honors Curriculum and Other												
44. Public Administration & Social Service Professions	2.39	3.42	4.60	13.06	1.30	1.58	2.01	3.14	1.63	1.76	2.95	4.17
52. Business Management, Marketing & related support services	1.50	2.43	4.98	15.24	1.21	1.63	2.78	10.04	1.55	2.22	3.82	7.74
13. Education	2.35	2.91	5.09	9.47	1.51	1.55	2.43	4.11	1.51	1.89	2.50	5.13
31. Parks, Recreation, Leisure & Fitness Studies	1.41	2.13	4.19	5.50	1.48	1.66	3.64	5.34	1.00	1.36	2.64	4.28
12. Personal & Culinary Services												
43. Security and Protective Services	1.41	2.05	6.22	10.33	1.00	1.27	2.13	3.02	1.21	1.30	2.65	5.50
50. Visual & Performing Arts	2.89	4.43	9.32	9.83	1.29	2.17	4.75	4.40	1.96	2.78	4.82	4.93
46. Construction Trades												
47. Mechanic Repair Technologies/Technicians												
48. Precision Production												
49. Transportation & Materials Moving												
01. Agricultural, Agriculture Operations & related sciences	1.38	4.51	8.66	10.26	2.63	3.07	5.28	4.81	1.70	2.19	3.00	3.24
03. Natural Resources & Conservation	2.14	5.78	11.61	8.60	1.49	2.33	3.12	3.87	1.55	1.86	3.31	3.66
11. Computer & Information Sciences & Support Services	1.56	4.14	7.33	10.60	1.46	2.13	3.62	4.25	1.74	2.76	3.49	5.39
26. Biological & Biomedical Sciences	2.33	3.44	10.30	10.77	1.44	2.02	5.05	4.64	1.35	1.99	4.80	5.56
40. Physical Sciences	2.67	5.39	11.17	9.89	1.56	2.27	6.16	5.34	1.43	2.20	4.60	4.45
22. Legal Professions and Studies	1.93	2.28	5.64	4.56	1.23	1.43	3.64		3.00	3.20	4.73	5.63
04. Architecture	3.28	4.66	7.09	3.36	0.93	2.15	3.41	4.34	2.11	2.44	3.65	6.05
14. Engineering	2.63	4.97	8.08	9.25	2.22	2.52	5.32	5.48	2.63	3.38	4.59	4.52
15. Engineering Technologies/Technicians	2.64	3.89	3.98	10.08	2.08	2.27	6.55	6.04	2.29	2.35	2.83	2.78
51. Nursing, Allied Health, Health Professions	1.72	3.41	6.60	8.89	1.64	1.88	5.11	5.29	1.48	2.16	4.04	8.02

Cost per Student Credit Hour RATIO- 2011	TEXAS – AVERAGED UP TO 2-DIGIT CIP CODE			
	Discipline Clusters			
05. Area, Ethnic, Cultural & Gender Studies	Lower	Upper	Grad 1	Grad 2
	1.00	1.69	3.91	9.23

09. Communication, Journalism and related programs	1.02	1.73	3.99	9.12
16. Foreign Languages, Literature and Linguistics	1.00	1.69	3.91	9.23
19. Family and Consumer Sciences/Human Sciences	1.04	1.66	2.91	8.39
23. English Language & Literature/Letters	1.00	1.69	3.91	9.23
24. Liberal Arts & Sciences, General Studies and Humanities	1.00	1.69	3.91	9.23
25. Library Science	1.44	1.12	2.69	9.64
27. Mathematics & Statistics	1.00	1.69	3.91	9.23
28. Reserve Officer Training Corps				
29. Military Technologies				
30. Multi/Interdisciplinary Studies	1.37	2.17	5.03	12.28
38. Philosophy & Religious Studies	1.00	1.69	3.91	9.23
42. Psychology and Applied Psychology	1.00	1.69	3.91	9.23
45. Social Sciences	1.05	1.76	4.04	9.47
54. History	1.00	1.69	3.91	9.23
99. Honors Curriculum and Other				
44. Public Administration & Social Service Professions	1.18	1.77	3.72	10.32
52. Business Management, Marketing & related support services	1.11	1.71	3.16	23.34
13. Education	1.38	1.83	3.17	8.99
31. Parks, Recreation, Leisure & Fitness Studies	1.16	1.79	4.23	12.54
12. Personal & Culinary Services	1.35	1.85	3.00	13.68
43. Security and Protective Services	1.38	1.98	4.03	7.55
50. Visual & Performing Arts	1.42	2.29	5.19	8.22
46. Construction Trades	1.42	1.89		
47. Mechanic Repair Technologies/Technicians	1.42	1.89		
48. Precision Production	1.42	1.89		
49. Transportation & Materials Moving	1.56	2.02	3.63	9.67
01. Agricultural, Agriculture Operations & related sciences	2.00	2.50	6.81	9.08
03. Natural Resources & Conservation	1.98	2.60	7.26	11.43
11. Computer & Information Sciences & Support Services	2.20	3.17	6.53	12.89
26. Biological & Biomedical Sciences	1.75	2.93	7.97	21.08
40. Physical Sciences	1.75	2.93	7.97	21.08
22. Legal Professions and Studies	1.04	1.70	3.61	14.87
04. Architecture	2.13	3.11	6.11	13.24

14. Engineering	2.42	3.70	7.46	16.03
15. Engineering Technologies/Technicians	2.13	2.57	4.22	4.11
51. Nursing, Allied Health, Health Professions	1.34	2.11	4.77	12.53

Cost per Student Credit Hour RATIO- 2011		AVERAGED – OH, IL, FL, TX			
Discipline Clusters	Lower	Upper	Grad 1	Grad 2	
05. Area, Ethnic, Cultural & Gender Studies	1.47	2.73	5.83	8.90	
09. Communication, Journalism and related programs	1.36	2.02	5.15	7.13	
16. Foreign Languages, Literature and Linguistics	1.49	1.98	4.39	6.37	
19. Family and Consumer Sciences/Human Sciences	1.14	1.59	5.45	6.98	
23. English Language & Literature/Letters	1.57	1.97	4.52	5.85	
24. Liberal Arts & Sciences, General Studies and Humanities	2.28	3.12	4.98	6.03	
25. Library Science	1.83	3.75	3.00	5.62	
27. Mathematics & Statistics	1.30	2.15	5.05	7.69	
28. Reserve Officer Training Corps					
29. Military Technologies					
30. Multi/Interdisciplinary Studies	1.78	2.35	3.03	8.28	
38. Philosophy & Religious Studies	1.35	1.97	5.56	6.87	
42. Psychology and Applied Psychology	1.00	1.79	4.55	6.85	
45. Social Sciences	1.17	1.87	4.85	7.41	
54. History	1.16	1.85	4.82	7.35	
99. Honors Curriculum and Other					
44. Public Administration & Social Service Professions	1.62	2.13	3.32	7.67	
52. Business Management, Marketing & related support services	1.34	2.00	3.68	14.09	
13. Education	1.69	2.05	3.30	6.92	
31. Parks, Recreation, Leisure & Fitness Studies	1.26	1.73	3.68	6.92	
12. Personal & Culinary Services					
43. Security and Protective Services	1.25	1.65	3.76	6.60	
50. Visual & Performing Arts	1.89	2.92	6.02	6.84	
46. Construction Trades					

47. Mechanic Repair Technologies/Technicians				
48. Precision Production				
49. Transportation & Materials Moving				
01. Agricultural, Agriculture Operations & related sciences	1.92	3.07	5.94	6.85
03. Natural Resources & Conservation	1.79	3.14	6.33	6.89
11. Computer & Information Sciences & Support Services	1.74	3.05	5.24	8.29
26. Biological & Biomedical Sciences	1.72	2.60	7.03	10.51
40. Physical Sciences	1.85	3.20	7.48	10.19
22. Legal Professions and Studies	1.80	2.15	4.40	6.26
04. Architecture	2.11	3.09	5.06	6.75
14. Engineering	2.47	3.64	6.36	8.82
15. Engineering Technologies/Technicians	2.29	2.77	4.39	5.75
51. Nursing, Allied Health, Health Professions	1.54	2.39	5.13	8.68

Cost per Student Credit Hour RATIO	average cost, then divided by psych lower level (ONLY IL, FL, OH)			
	Lower	Upper	Grad 1	Grad 2
Discipline Clusters				
05. Area, Ethnic, Cultural & Gender Studies	1.53	2.64	5.38	7.72
09. Communication, Journalism and related programs	1.34	1.94	5.12	5.93
16. Foreign Languages, Literature and Linguistics	1.45	1.87	4.19	5.19
19. Family and Consumer Sciences/Human Sciences	1.13	1.48	5.81	6.24
23. English Language & Literature/Letters	1.51	1.87	4.29	4.41
24. Liberal Arts & Sciences, General Studies and Humanities	2.46	3.23	5.26	5.06
25. Library Science	1.68	5.05	2.87	3.16
27. Mathematics & Statistics	1.29	1.99	4.76	6.45
28. Reserve Officer Training Corps				
29. Military Technologies				
30. Multi/Interdisciplinary Studies	1.76	2.26	2.76	5.84

38. Philosophy & Religious Studies	1.33	1.83	5.20	5.64
42. Psychology and Applied Psychology	1.00	1.67	4.13	5.38
45. Social Sciences	1.16	1.74	4.47	6.02
54. History	1.16	1.74	4.47	6.02
99. Honors Curriculum and Other				
44. Public Administration & Social Service Professions	1.61	1.97	2.79	5.29
52. Business Management, Marketing & related support services	1.37	1.96	3.51	10.27
13. Education	1.66	1.91	2.94	5.42
31. Parks, Recreation, Leisure & Fitness Studies	1.32	1.65	3.42	5.03
12. Personal & Culinary Services	0.00	0.00	0.00	0.00
43. Security and Protective Services	1.14	1.42	3.05	5.15
50. Visual & Performing Arts	1.80	2.78	5.61	5.57
46. Construction Trades				
47. Mechanic Repair Technologies/Technicians				
48. Precision Production	1.32	1.65	3.42	5.03
49. Transportation & Materials Moving	0.00	0.00	0.00	0.00
01. Agricultural, Agriculture Operations & related sciences	2.10	3.06	5.18	5.31
03. Natural Resources & Conservation	1.63	2.81	4.74	4.67
11. Computer & Information Sciences & Support Services	1.56	2.70	4.26	5.78
26. Biological & Biomedical Sciences	1.58	2.27	5.94	6.06
40. Physical Sciences	1.72	2.82	6.59	5.90
22. Legal Professions and Studies	1.92	2.15	4.35	2.63
04. Architecture	1.74	2.71	4.16	4.71
14. Engineering	2.43	3.24	5.60	5.87
15. Engineering Technologies/Technicians	2.25	2.59	4.89	5.75
51. Nursing, Allied Health, Health Professions	1.60	2.25	5.05	6.82