

# Comparing Vanderbilt's Software Availability and Pricing to Other Comparable Universities

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## **Introduction**

Part of Vanderbilt's support for the Kennedy Center Investigators is the campus wide site license program for scientific computer software, ranging from popular programs like SPSS or Endnotes to niche products like BILOG\_MG or Parascale, with small numbers of users. This research was conducted to compare Vanderbilt University's distribution of mathematical and statistical software to similarly ranked institutions across the United States.

Rankings were taken from the 2005 edition of the annual *US News and World Reports*, 'National Top Universities' listing (University Rankings). In addition to Vanderbilt, 10 private universities were chosen for comparison; in addition the University of Tennessee and the University of California at Davis were added because they have reputations for offering outstanding site license programs.

Once the list of 13 universities was chosen, data was collected from these universities to evaluate the availability of programs to faculty or staff and the price they would pay for a license purchased through the school's Information Technology Services (ITS) Department, or similar department. This data was used to see if Vanderbilt Kennedy Center Investigators were getting enough support from the ITS, and how it compared to other peer Universities.

## **Methods Used**

Information was gathered about the availability of a mathematical or statistical program through a university's software department and the pricing of

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these programs. This information is usually offered online to anyone curious enough to search it out. A few schools could not provide complete information. When only incomplete data was available, all available data was used in the summary. Some schools made the information unavailable to viewers not associated with the university online, but were willing to supply the data requested once it was routed through the Software Distribution personnel.

The mean price of other universities software was used to compare the pricings of available programs to the prices per program of Vanderbilt's peers.

## **Data**

Once the data was entered into an Excel spreadsheet, [Software Distribution.xls](#), it was then imported into SPSS v13.0, and may be accessed through the SPSS file [SoftwareDistribution.sav](#). The output can be found in [Output06242005.spo](#). These data files are available by sending a request via email to [jessica.cornelius@vanderbilt.edu](mailto:jessica.cornelius@vanderbilt.edu).

Table 1 compares Vanderbilt's price with the mean price of the same software offered at 12 comparable universities. Vanderbilt's pricing is about average, with the largest price difference being only \$50.00 more than the average. If all programs were bought through Vanderbilt ITS by a faculty or staff member, they would only pay \$60.05 more than the average faculty or staff member at the competing schools, or \$5.46 more per program than similarly ranked schools. This roughly \$5 difference is small enough that we conclude Vanderbilt prices are about average for site licenses.

Table 1

*Vanderbilt's pricing of mathematical and statistical software in comparison to similar schools.*

	Number of schools offering the program	Mean Price*	Vanderbilt Price*	Amount Vanderbilt pays above the mean* **	% of price paid above mean***
Mathematica	7	\$74.28	\$75.00	\$0.72	0.97%
Minitab	2	\$40.00	\$30.00	-\$10.00	-25.00%
SAS	8	\$43.38	\$40.00	-\$3.38	-7.79%
SPSS	8	\$125.62	\$60.00	-\$65.62	-52.24%
SSI Bilog	2	\$87.50	\$100.00	\$12.50	14.29%
SSI HLM	3	\$66.67	\$100.00	\$33.33	49.99%
SSI Multilog	2	\$87.50	\$100.00	\$12.50	14.29%
SSI Test fact	2	\$87.50	\$100.00	\$12.50	14.29%
SSI Parscal	2	\$87.50	\$100.00	\$12.50	14.29%
SSI Lisrel	2	\$115.00	\$120.00	\$5.00	4.35%

\* All prices are denoted in US Dollars.  
 \*\* The Amount Vanderbilt pays over the mean = Vanderbilt price – Mean Price  
 \*\*\* % price paid above the mean = Amount paid above the mean / Mean Price

Table 2 shows the number of scientific programs offered by the 13 universities. The average number of programs offered by these universities is 7.5. As can be seen, 7 of the schools are above this average, with the highest being University of Tennessee at Knoxville. Vanderbilt is ranked 3<sup>rd</sup> in the number of programs offered through the ITS department, which places the school in the top quartile. Vanderbilt offered 11 programs, which is 46% more than the average.

Table 2

*Vanderbilt's rank by Number of statistical programs offered and University Rank. US News and World Report 2005*

Rank	University	Number of Programs offered	US News & World Reports Rank**
1	U of TN- Knoxville	15	95
2	Yale	13	3
3	Vanderbilt	11	19
4	Princeton	9	2
5	Duke	9	5
6	Notre Dame	9	18
7	Stanford	8	7
8	New York	6	33
9	John Hopkins	5	15
10	Emory	5	20
11	Columbia	4	9
12	Harvard	3	1
13	U of CA- Davis*	0	42

\* University of California at Davis could not supply information  
 \*\* US News Rank is a national comparative rating of the university's stature.

Table 3 lists all the mathematical and statistical programs offered by the surveyed schools. Each one operates differently, and some address very specific quantitative problems. The average number of schools to use any one program is 3.57, or there is a 28% chance that a school will use one of these programs. Vanderbilt uses Mathematica, SAS, SPLUS, and SPSS. All of these are used by many schools. Vanderbilt also offers Minitab, a classic statistical program, suitable for a beginner to learn statistics on, and all of the SSI psychometric packages, which are very specialized and not widely used.

Table 3

*Number of Universities using each program title*

<b>Program</b>	<b>Number</b>	<b>Program</b>	<b>Number</b>
Ample	1	S-Plus	8
IMSLC Num	1	SPSS Clementine	1
JMP	1	SPSS Data Access Pack	1
Logger Pro	1	SPSS Decision Time What If	1
Maple	5	SPSS	12
Mathematica	10	SSI BilogMG	2
MatLab	7	SSI HLM	3
Minitab	2	SSI Lisrel	3
NAG	2	SSI Multilog	2
PC Wave	1	SSI Parscale	2
QDA Miner	1	SSI Test Fact	2
SAS	11	Stata	7
Sigma Plot	2	StatGraphics	1
Sim Stat	1	SyStat	3

### **Data Notes**

Harvard University, New York University, University of California at Davis, and Notre Dame require a university Login ID to gain access to the required data online. After requesting the information be sent to be used in a research project, Harvard, Princeton, and University of California at Davis declined making the information available to someone who was not faculty, staff, or student of their university. Notre Dame sent a list of programs supported by the school and the pricing information via an email. New York University did not replied to requests to release the software and pricing data before the project was completed. Schools that supplied complete data were Columbia University, Duke University, Johns Hopkins University, Notre Dame University, University of Tennessee at Knoxville, Vanderbilt University, and Yale University. Some prices varied by which operating system the program would be ran under. All prices that varied by operating system are under Windows pricing. The key to the usage codes in the Excel and SPSS spreadsheets is 2 = the school offers the software, 1 = the school does not offer the software, and 0 = incomplete data. Since there are many schools supplying incomplete information, and a small sample size of 13

schools chosen, significance tests would be underpowered so they were not done. This project however, does supply enough data to determine that Vanderbilt is keeping up with its peer universities on software distribution.

## **Conclusion**

Vanderbilt's prices per program are only slightly higher than the average, but not enough to make the school's pricing system bad. Compared with other universities in the sample, Vanderbilt falls into the average pricing bracket for the software packages offered through its Information Technology Services (ITS) department.

Vanderbilt's number of programs that are offered is above average, exceeded only by University of Tennessee at Knoxville and Yale. Its listing of 11 programs being offered is well above the average of 7.5. Therefore, Vanderbilt is above average for the number of mathematical and statistical programs being offered through the ITS department.

Vanderbilt University offers more specialized scientific computer programs than most of its peer schools to its faculty, staff, and students, and at prices comparable to similar universities. Therefore, I conclude that Vanderbilt is doing an excellent job with the statistical software distribution, and making a wide variety of specialized programs accessible to faculty, staff, and students.

# Appendix A

## Sources

Listed below are the sources used to obtain the information needed for this project. All websites were accessed between 15 May 2005 and 20 June 2005. They are divided by schools so that it is easy to decipher.

### **Colombia University**

- Listing of all site licenses available, pricing found following links  
<http://www.columbia.edu/acis/software/licenses/>
- <http://www.cs.columbia.edu/crf/crf-guide/resources/software/index.html>
- List of all supported programs in business school  
<http://www0.gsb.columbia.edu/cis/admin/purchasing/supportmatrices>

### **Duke University**

- All software <http://www.oit.duke.edu/site/software.html>
- All mathematical and statistical software  
<http://www.oit.duke.edu/site/software.html#stats> and links to specific applications
- Stat pricing page from stata.com  
<http://www.stata.com/order/new/edu/gradplans/gp-campus.html>

### **Emory University**

- <http://www.software.emory.edu/sdc/other.cfm>

### **Harvard University**

- [www.wjh.harvard.edu/soc\\_help/wjhstats.htm](http://www.wjh.harvard.edu/soc_help/wjhstats.htm)
- <http://www.hcp.med.harvard.edu/statistics/survey-soft/#Packages>

### **Johns Hopkins University**

- [http://www.jhu.edu/~hac\\_supp/catalog.html](http://www.jhu.edu/~hac_supp/catalog.html) Listing for all software available through the university. Follow links to specific mathematical and statistical packages to obtain required information.

### **New York University**

- <http://www.nyu.edu/its/sitemap.html>

## **Princeton University**

- <http://www.princeton.edu/~licenses/>

## **Stanford University**

- <http://www.stanford.edu/services/softwarelic/list.html>

## **University of California at Davis**

- <http://my.ucdavis.edu/software>

## **University of Notre Dame**

See excel spreadsheet [Copy of Math and Stats software at ND.xls](#)

## **University Rankings**

- US News and World Report website, America's Best Colleges 2005  
[http://www.usnews.com/usnews/edu/college/rankings/brief/natudoc/tier1/t1natudoc\\_brief.php](http://www.usnews.com/usnews/edu/college/rankings/brief/natudoc/tier1/t1natudoc_brief.php)

## **University of Tennessee at Knoxville**

- <https://notes.utk.edu/units/cala/swcat.nsf/733acded639e32018525630e005f51?OpenView&Start=1.29&Count=30&CollapseView>

## **Vanderbilt University**

- <http://www.vanderbilt.edu/its/license/platform/products.html>

## **Yale University**

- [www.yale.edu/software](http://www.yale.edu/software)
- <http://statlab.stat.yale.edu/inventory/software/>
- Minitab, SPSS, S Plus, HLM, Testfact, Parascale, Multilog, and Lisrel may be rented to students on a time limit basis through a third party vendor, e-academy, which is found at <http://www.e-academy.com/>
- Mathematica pricings based on \$100 per machine flat rate, from <http://wss.yale.edu/mathematica/>
- <http://wss.yale.edu/matlab/>
- Stata may be ordered through company at a discounted rate from <http://www.stata.com/order/new/edu/gradplans/gp-campus.html>.



# Appendix B

## Descriptive Statistics

Table 1 inserted from SPSS Output06242005, describes costs of software programs.

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
AmpIC	0							
IMSLCNumC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
JMPC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
LoggerProC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
MapleC	3	\$100.00	\$ .00	\$100.00	\$33.33	\$33.33	\$57.73	3333.333
MathematicaC	7	\$154.00	\$ .00	\$154.00	\$74.28	\$21.51	\$56.91	3238.905
MatLabC	6	\$550.00	\$ .00	\$550.00	\$154.16	\$83.45	\$204.41	41784.167
MinitabC	2	\$19.99	\$30.00	\$49.99	\$39.99	\$9.99	\$14.13	199.800
PCWaveC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
QDAMinerC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SASC	8	\$125.00	\$ .00	\$125.00	\$43.37	\$16.53	\$46.76	2186.839
SigmaPlotC	2	\$31.00	\$44.00	\$75.00	\$59.50	\$15.50	\$21.92	480.500
SimStatC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SPlusC	6	\$100.00	\$ .00	\$100.00	\$30.00	\$19.14	\$46.90	2200.000
SPSSC	8	\$450.00	\$ .00	\$450.00	\$125.62	\$52.68	\$149.01	22206.398
SPSS Clementine C	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SPSS Data Access PackC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SPSS Decision Time What IfC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SSI Bilog MGC	2	\$25.00	\$75.00	\$100.00	\$87.50	\$12.50	\$17.67	312.500
SSIHLMC	3	\$100.00	\$ .00	\$100.00	\$66.66	\$33.33	\$57.73	3333.333
SSI LisrelC	2	\$10.00	\$110.00	\$120.00	\$115.00	\$5.00	\$7.07	50.000
SSI MultilogC	2	\$25.00	\$75.00	\$100.00	\$87.50	\$12.50	\$17.67	312.500
SSI ParscaleC	2	\$25.00	\$75.00	\$100.00	\$87.50	\$12.50	\$17.67	312.500
SSI Test FactC	2	\$25.00	\$75.00	\$100.00	\$87.50	\$12.50	\$17.67	312.500
StataC	3	\$295.00	\$ .00	\$295.00	\$141.33	\$85.38	\$147.88	21870.333
StatGraphicsC	1	\$ .00	\$ .00	\$ .00	\$ .00	.	.	.
SyStatC	2	\$134.00	\$44.00	\$178.00	\$111.00	\$67.00	\$94.75	8978.000