

Lab Loading Gap Analysis

Two data sets were used in conducting this lab loading cost analysis. The *classes taught* data set was generated by Kerry Mitchell, Director of Institutional Planning, Research, and Effectiveness and included course data extracted from IRIS for Fall 2015, Spring 2016, and Summer 2016. This data set included 44,320 class sections. The *course bank* data set was generated by Robert Peterson, Programmer Analyst II for the Center for Curriculum and Transfer Articulation and provides the prescribed credits, instructional load, periods, and load formula designator for each course offered at Maricopa Community Colleges. Because each data set contained information important for this analysis, the *classes taught* data set was augmented with information from the *course bank* data set.

There was a combined total of 44,320 class sections offered districtwide in Fall 2015, Spring 2016, and Summer 2016. Of these, 36,524 class sections had instructional load greater than 0. The focus of this lab loading cost analysis is the 10,521 class sections classified L+L or LAB and, more specifically, the 9,436 class sections which use the standard load formula S and the 555 class sections which use the activity load formula E. Because Rio prorates instructional load, Rio class sections will be analyzed separately. This analysis focuses on the 8,401 L+L and LAB sections using load formula S with nonzero instructional load at colleges other than Rio. This analysis also focuses on the 533 L+L sections using load formula E with nonzero instructional load at colleges other than Rio (Figure 1).

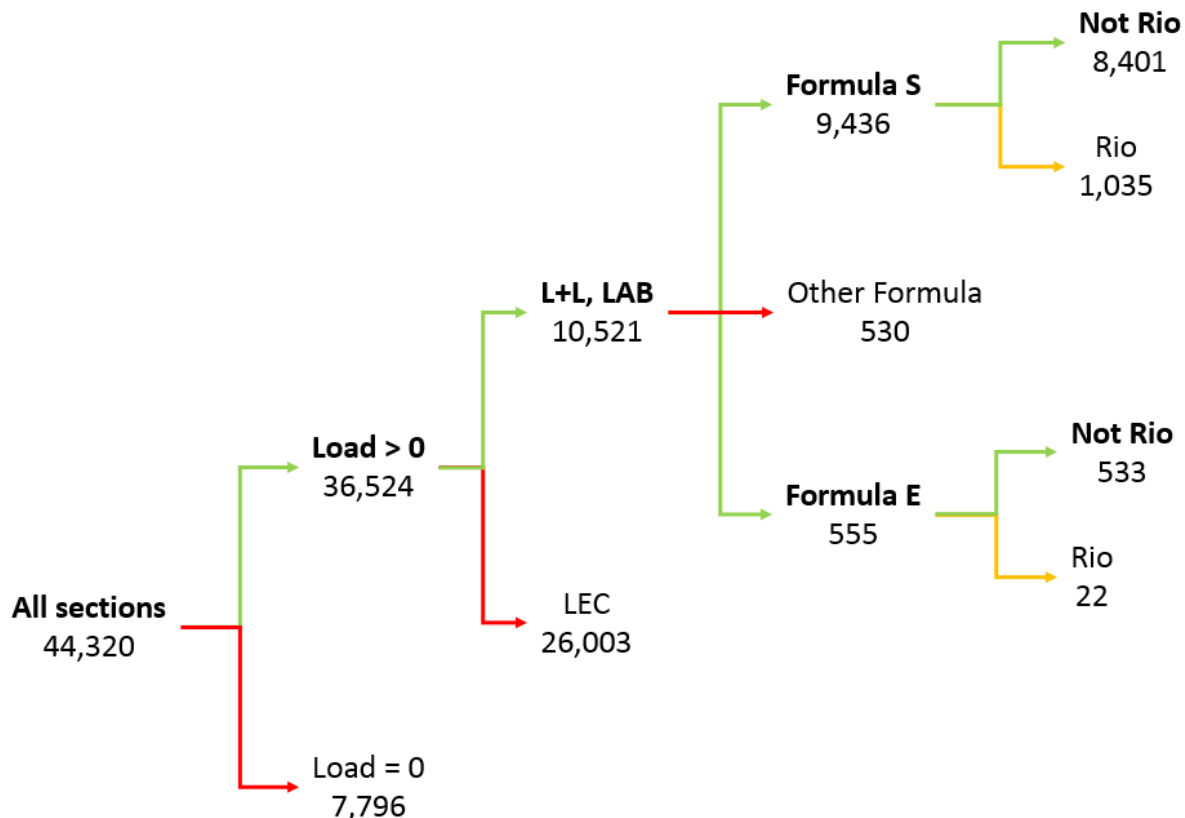


Figure 1. Tree diagram identifying F15, S16, and Sum16 class sections to be included in the cost analysis

The *course bank* data set provides the prescribed credits, instructional load, and periods for each course offered at Maricopa Community Colleges. In reality, load for a course may be adjusted

locally for a number of reasons including high enrollment, low enrollment, or other unspecified reason. In many cases, the actual values and prescribed values are the same. Despite these irregularities in loading, it makes sense to use actual load and actual periods in costing out the solution instead of the prescribed load and period values specified in the course bank.

The proposed solution to the lab loading problem is to equate load with periods. Table 2 shows the load gap by college for the 9,436 L+L and LAB sections using load formula S with nonzero instructional load at colleges other than Rio and a cost estimate for equating load with periods for classes offered in Fall 2015, Spring 2016, and Summer 2016.

Table 1

Cost Estimate for Equating Load with Periods - Non-Rio, Nonzero Load, Formula S, L+L and LAB Sections

College	Class Sections	Actual Load	Actual Periods	Gap	Cost (\$863/load hr)
CG	912	3405	3788	383	\$330,564
EM	653	2367	2534	167	\$144,466
GC	1502	5463	6660	1196	\$1,032,424
GW	591	3009	2796	-214	-\$184,466
MC	1866	6534	7537	1004	\$866,133
PC	1025	3872	4183	311	\$268,229
PV	658	2175	2468	294	\$253,394
SC	889	3463	3499	37	\$31,517
SM	305	914	1108	194	\$166,999
Grand Total	8401	31,202	34,573	3371	\$2,909,259

Table 2 shows the load gap by college for the 533 L+L sections using load formula E with nonzero instructional load at colleges other than Rio and a cost estimate for equating load with periods for classes offered in Fall 2015, Spring 2016, and Summer 2016.

Table 2

Cost Estimate for Equating Load with Periods - Non-Rio, Nonzero Load, Formula E, L+L Sections

College	Class Sections	Actual Load	Actual Periods	Gap	Cost (\$863/load hr)
CG	17	26	34	9	\$7,336
EM	19	30	40	10	\$8,630
GC	114	314	231	-83	-\$71,422
GW	18	26	44	18	\$15,534
MC	85	126	171	44	\$38,084
PC	47	110	103	-7	-\$6,360
PV	96	223	199	-24	-\$20,729
SC	79	214	164	-50	-\$43,521
SM	58	104	142	38	\$33,087
Grand Total	533	1173	1128	-46	-\$39,361

Table 3 combines the results of Tables 1 through 2 and provides a cost estimate for addressing the lab loading problem at all colleges except Rio Salado College.

Table 3

Cost Estimate for Equating Load with Periods – Non-Rio, Nonzero Load, Formula S and E, L+L and LAB Sections

Load Formula	Class Sections	Actual Load	Actual Periods	Gap	Cost (\$863/load hr)
S	8401	31,202	34,573	3371	\$2,909,259
E	533	1173	1128	-46	(\$39,361)
Total	8934	32375	35701	3325	\$2,869,898

Rio Salado College’s business model entails starting new classes weekly. Because it is typical for enrollment in a single class section to be comparatively low, instructional load for class sections is prorated based on enrollment. For Fall 2014, Spring 2015, and Summer 2015, Rio had 1063 class sections with load formula S or E and a load gap of 250.19 with a cost of \$215,914. Because the number of Rio class sections for Fall 2015, Spring 2016, and Summer 2016 was roughly the same (1057 vs 1063), it is presumed the cost will be roughly the same. Consequently, no further analysis was done on the Rio data.

Combining the results of Table 3 with the Rio data, **the total investment to address the lab loading issue districtwide is estimated to be \$3,085,812**, based on the Fall 2015, Spring 2016, and Summer 2016 data. This is down slightly from the \$3,368,505 estimate for the Fall 2014, Spring 2015, and Summer 2015 data.