

Nicholas Bernal

Math 80

14 July 2020

Lab Activity #3

1. These are the relative frequencies of the number of classes. They were calculated in LibreOffice.

| F al l of | 0-10 | 10-19 | 20-29 | 30-39 | 40-49 | 50-99 | >100 | T ot al |
|--------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------|
| 2 0 1 0 | 0.138613 86138613 9 | 0.399339 93399339 9 | 0.300330 0330033 | 0.122112 21122112 2 | 0.026402 64026402 6 | 0.006600 66006600 7 | 0.006600 66006600 7 | 1 |
| 2 0 1 1 | 0.144475 92067988 7 | 0.436260 62322946 2 | 0.331444 75920679 9 | 0.062322 94617563 7 | 0.016997 16713881 | 0.005665 72237960 3 | 0.002832 86118980 2 | 1 |
| 2 0 1 2 | 0.149625 93516209 5 | 0.431421 44638404 | 0.306733 16708229 4 | 0.072319 20199501 3 | 0.032418 95261845 4 | 0.004987 53117207 | 0.002493 76558603 5 | 1 |
| 2 0 1 3 | 0.129113 92405063 3 | 0.425316 45569620 3 | 0.346835 44303797 5 | 0.078481 01265822 8 | 0.012658 22784810 1 | 0.002531 64556962 | 0.005063 29113924 1 | 1 |
| 2 0 1 4 | 0.160194 17475728 2 | 0.417475 72815534 | 0.330097 08737864 1 | 0.055825 24271844 7 | 0.021844 66019417 5 | 0.009708 73786407 8 | 0.004854 36893203 9 | 1 |

| | | | | | | | | |
|---|----------|----------|----------|----------|----------|----------|----------|---|
| 2 | 0.186274 | 0.362745 | 0.377450 | 0.051470 | 0.009803 | 0.009803 | 0.002450 | 1 |
| 0 | 50980392 | 09803921 | 98039215 | 58823529 | 92156862 | 92156862 | 98039215 | |
| 1 | 2 | 6 | 7 | 4 | 7 | 7 | 7 | |
| 5 | | | | | | | | |
| 2 | 0.214452 | 0.419580 | 0.310023 | 0.032634 | 0.013986 | 0.006993 | 0.002331 | 1 |
| 0 | 21445221 | 41958042 | 31002331 | 03263403 | 01398601 | 00699300 | 00233100 | |
| 1 | 4 | | | 3 | 4 | 7 | 2 | |
| 6 | | | | | | | | |
| 2 | 0.170542 | 0.405684 | 0.364341 | 0.031007 | 0.020671 | 0.005167 | 0.002583 | 1 |
| 0 | 63565891 | 75452196 | 08527131 | 75193798 | 83462532 | 95865633 | 97932816 | |
| 1 | 5 | 4 | 8 | 5 | 3 | 1 | 5 | |
| 7 | | | | | | | | |
| 2 | 0.117647 | 0.459276 | 0.366515 | 0.029411 | 0.002262 | 0.024886 | 0 | 1 |
| 0 | 05882352 | 01809954 | 83710407 | 76470588 | 44343891 | 87782805 | | |
| 1 | 9 | 8 | 2 | 2 | 4 | 4 | | |
| 8 | | | | | | | | |
| 2 | 0.111979 | 0.395833 | 0.429687 | 0.046875 | 0.010416 | 0.005208 | 0 | 1 |
| 0 | 16666666 | 33333333 | 5 | | 66666666 | 33333333 | | |
| 1 | 7 | 3 | | | 7 | 3 | | |
| 9 | | | | | | | | |

2. The overflow column, classes with more than 100 students, has been removed.

| | | | | | | | |
|------|------------|------------|------------|------------|------------|------------|--|
| 2010 | 0.13861386 | 0.39933993 | 0.30033003 | 0.12211221 | 0.02640264 | 0.00660066 | |
| | 1386139 | 3993399 | 30033 | 1221122 | 0264026 | 0066007 | |
| 2011 | 0.14447592 | 0.43626062 | 0.33144475 | 0.06232294 | 0.01699716 | 0.00566572 | |
| | 0679887 | 3229462 | 9206799 | 6175637 | 713881 | 2379603 | |
| 2012 | 0.14962593 | 0.43142144 | 0.30673316 | 0.07231920 | 0.03241895 | 0.00498753 | |
| | 5162095 | 638404 | 7082294 | 1995013 | 2618454 | 117207 | |
| 2013 | 0.12911392 | 0.42531645 | 0.34683544 | 0.07848101 | 0.01265822 | 0.00253164 | |
| | 4050633 | 5696203 | 3037975 | 2658228 | 7848101 | 556962 | |

| | | | | | | |
|------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 2014 | 0.16019417 4757282 | 0.41747572 815534 | 0.33009708 7378641 | 0.05582524 2718447 | 0.02184466 0194175 | 0.00970873 7864078 |
| 2015 | 0.18627450 9803922 | 0.36274509 8039216 | 0.37745098 0392157 | 0.05147058 8235294 | 0.00980392 1568627 | 0.00980392 1568627 |
| 2016 | 0.21445221 4452214 | 0.41958041 958042 | 0.31002331 002331 | 0.03263403 2634033 | 0.01398601 3986014 | 0.00699300 6993007 |
| 2017 | 0.17054263 5658915 | 0.40568475 4521964 | 0.36434108 5271318 | 0.03100775 1937985 | 0.02067183 4625323 | 0.00516795 8656331 |
| 2018 | 0.11764705 8823529 | 0.45927601 8099548 | 0.36651583 7104072 | 0.02941176 4705882 | 0.00226244 3438914 | 0.02488687 7828054 |
| 2019 | 0.11197916 6666667 | 0.39583333 3333333 | 0.4296875 | 0.046875 | 0.01041666 6666667 | 0.00520833 3333333 |

3. This is the 2D histogram of relative frequencies rounded to the nearest percent. Each line adds up to 100%.

| 2D Histogram | 0-19 | 20-39 | 40-99 | Total |
|--------------|--------|--------|-------|---------|
| 2010-12 | 56.00% | 41.00% | 3.00% | 100.00% |
| 2012-13 | 57.00% | 40.00% | 3.00% | 100.00% |
| 2014-15 | 56.00% | 41.00% | 3.00% | 100.00% |
| 2015-17 | 61.00% | 37.00% | 2.00% | 100.00% |
| 2018-19 | 54.00% | 44.00% | 2.00% | 100.00% |

4. One trend is the likelihood of being in a class with 40-99 people is very low compared to the class sizes 0-19 and 20-39. There has not been an increase in the amount of students

attending Whittier rather an increase in the amount of classes offered. This has allowed the school to keep class sizes relatively small.