Report on CHEM 4448 Input to the Departmental OATdB Item

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Table 1 contains the statistical data for ten years of final exam performance. With the exception of 2004, the final exam has been fairly static with minor changes to the questions but the same coverage and depth.

The enrollment figures are captured in the “Count” column. The percent of students not achieving the 60% bar is shown on the “% < 60%” row. The “T-Test to all” row compares the distribution of student performance for the given column to the “All” column past, present, and future. The “T-Test to all previous years” is specific to this year, and compares this year’s distribution to all previous years. The T-Tests give “the probability that the distributions are from the same parent distribution”. If the T-Test is below a threshold value (, of choice by the reader) then the distributions can be said to be statistically different at the 1 - level of confidence.

**Table 1: Statistical Data for the past decade on student performance on the final examination. The “All prev years” column contains the scores from 2004 – 2012.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | All | All prev years | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Count | 283 | 243 | 19 | 15 | 14 | 27 | 33 | 36 | 31 | 38 | 30 | 40 |
| N<60% | 40 | 35 | 15 | 1 | 2 | 5 | 1 | 3 | 1 | 5 | 2 | 5 |
| % < 60% | 14% | 14% | 79% | 7% | 14% | 19% | 3% | 8% | 3% | 13% | 7% | 13% |
| % Passing | 86% | 86% | 21% | 93% | 86% | 81% | 97% | 92% | 97% | 87% | 93% | 88% |
| Ave Score | 75% | 75% | 50% | 80% | 77% | 70% | 83% | 75% | 81% | 74% | 80% | 73% |
| Stdev of Scores | 14% | 15% | 14% | 11% | 12% | 15% | 12% | 11% | 10% | 11% | 12% | 11% |
| T-Test to all | 0.78 | 0.00 | 0.14 | 0.48 | 0.14 | 0.00 | 0.91 | 0.01 | 0.73 | 0.04 | 0.27 |
| T-Test to all previous years |  |  |  |  |  |  |  |  | 0.23 |

**Analysis of 2013**

This year saw a larger number (5, 13%) of students who did not achieve the desired level of competency. However, this is not a significant shift from the overall distribution which shows a historical trend of 14% of students who do not achieve the desired level of competency.

Drilling down into the contributing factors for these students one sees a trend of poor performance on the laboratory reports. Discussion with the TAs for this course has revealed that these students exhibited extremely poor time management skills, with procrastination creating a situation where large portions of the lab report were simply left blank. Remediation was attempted early in the semester with emphatic exhortations in lecture and lab, to not procrastinate, to take advantage of the TA’s assistance, etc. These students refused to take advantage of this advice.