

# Correlation between GPA and faculty evaluations at UIUC: Supplemental material

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## 1 Introduction

In this supplemental report, we describe our data gathering method, and provide detailed numerical statistics from our figures.

## 2 Data

We parse and match data from multiple independent data sources. Because distinct sources have different coverages and data fields, matching samples together is not a trivial task. To this end, we scrape the UIUC Course Catalog, a complete list of courses offered historically, and match all other data sources against it.

### 2.1 Catalog

The catalog is a complete list of every class and section offered in the past. Course sections are identified by course ID, department, course number, and professor name. All other data samples can be matched to a datum in the catalog, based on some or all of those fields.

The catalog has an XML API [1], which we scrape with a script.

### 2.2 ICES Faculty Rating

Students rate their faculty at the end of each term with a survey of mainly Likert scale questions. Evaluations for a single professor and course are combined into two numerical measures: Teaching effectiveness, and course quality. If both values pass respective thresholds, the professor earns an “excellent” rating for that course. If even higher thresholds are passed, they earn “outstanding” [2].

Thresholds are different for Required Courses (courses that must be taken for a degree); Elective Courses (courses not required for a degree); and Mixed Courses (requirement depends on degree) [2]. Required Courses have lower thresholds, because they generally receive lower ratings. TAs have different thresholds as well, and TAs are only considered with the teaching effectiveness metric.

Table 1 shows the thresholds required for a faculty to obtain a rating [2].

The results are released as a PDF document of “Teachers Ranked as Excellent”, containing professor, department, and course number.

Rating	Individual	Required	Mixed	Elective
Excellent	Faculty Item 1	4.4	4.5	4.6
	Faculty Item 2	4.3	4.4	4.5
	TA Item 1	4.3	4.4	4.5
Outstanding	Faculty Item 1	4.83	4.81	4.88
	Faculty Item 2	4.74	4.75	4.84
	TA Item 1	4.70	4.73	4.80

Table 1: Evaluation thresholds for faculty to receive rating.

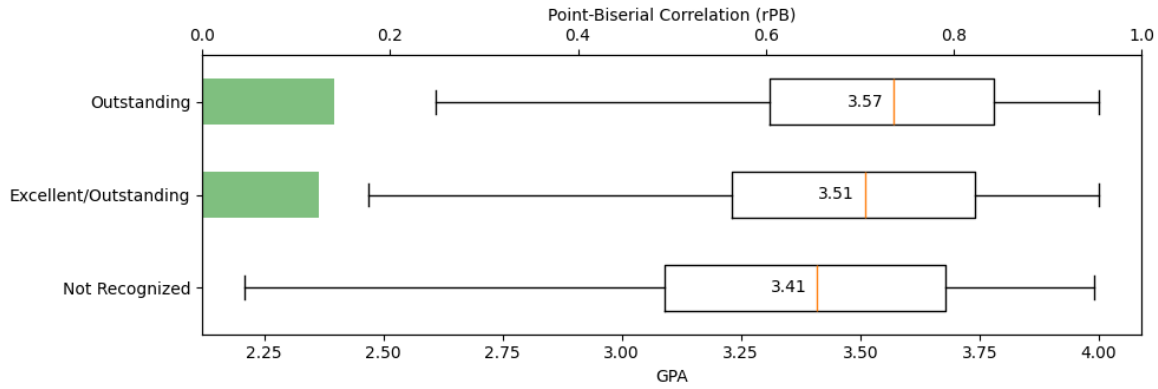


Figure 1: GPA distribution by professor rating (outliers removed), and the Point-Biserial correlation.

Name	5 number summary	Population size	Mean	Std. dev.	$r_{PB}$
Outstanding	1.82,3.31,3.57,3.78,4	7762	3.51	0.35	0.140
Excellent/Outstanding	1.43,3.23,3.51,3.74,4	28315	3.45	0.36	0.124
Not Recognized	1.14,3.09,3.41,3.68,3.99	40487	3.35	0.41	N/A

Table 2: Statistics for distributions in Figure 1

## 2.3 Course GPA

Under the Freedom Of Information Act (FOIA), the average GPA of courses is released as public data on request, when doing so maintains student confidentiality. We use a repository of GPA data collected by a professor at the university [3].

GPA data are only released when doing so maintains student confidentiality. Courses with fewer than 20 students, or in which all students received the same grade, were withheld from the data. In our main report, we discuss how these factors affect our results.

GPA data contain the fields course ID, professor, department, and course number.

## 3 Results and Analysis

We present the same figures as in our main report. In the tables, we list the numerical values of the data statistics. Table 2 shows statistics for Figure 1, and Table 3 for Figure 2.

### 3.1 Point Biserial Correlation

The Point-Biserial Correlation Coefficient ( $r_{PB}$ ) measures the correlation between a binary variable and a continuous variable. We compute  $r_{PB}$  between whether teaching honors was earned and course GPA.

In Figure 1, we compute the correlation of the bottom distribution with each of the top two. “Not recognized” represents the negative state of the binary variable, while “outstanding” and “excellent/oustanding” are used as the positive state, respectively. In Figure 2, we show the correlation by college. Although not plotted separately, we consider the rating positive when at least “excellent” is earned.

The correlation coefficient is more important than statistical significance. With the large population sizes we use, significance levels are far beyond standard thresholds, and are thus quite meaningless. Additionally, significance is a binary result, so extents of significance cannot be compared. In contrast, the correlation coefficient remains between  $-1$  and  $1$ , and depends mainly on the mean and standard deviation (the sample size is canceled out in the formula). This allows us to see much finer results.

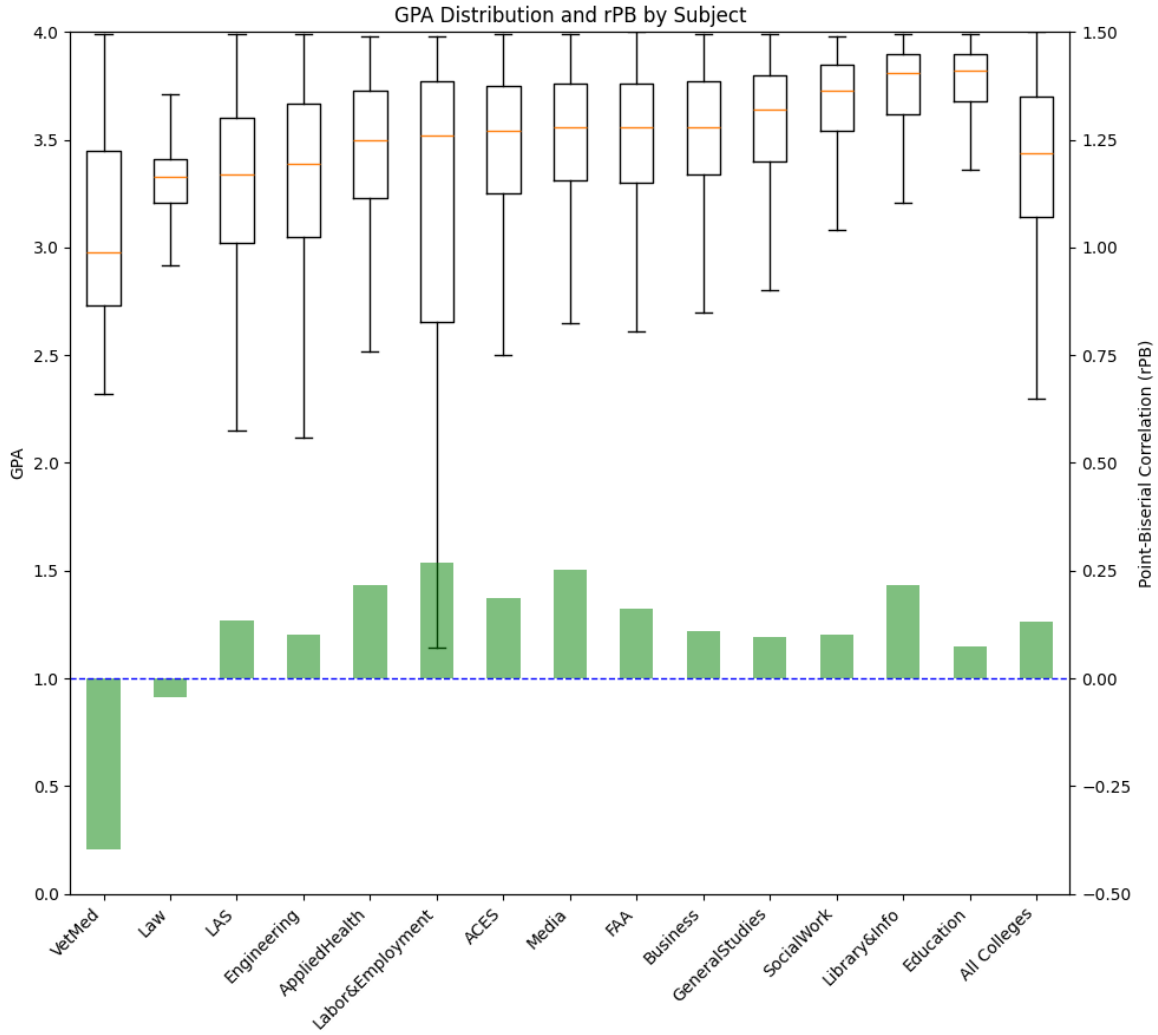


Figure 2: GPA distribution and Point-Biserial correlation by college.

Name	Population size	Num rated	Mean	Std. dev.	rPB
VetMed	220	131	3.11	0.47	-0.40
Law	1053	502	3.34	0.15	-0.04
LAS	28941	13041	3.29	0.40	0.13
Engineering	10248	2948	3.34	0.40	0.10
AppliedHealth	1766	568	3.45	0.34	0.22
Labor/Employment	807	93	3.22	0.65	0.27
ACES	4549	1790	3.47	0.36	0.19
Media	1826	704	3.50	0.33	0.25
FAA	3226	1360	3.50	0.33	0.16
Business	8154	4440	3.52	0.32	0.11
GeneralStudies	445	273	3.54	0.36	0.09
SocialWork	885	428	3.66	0.25	0.10
Library/Info	779	302	3.71	0.27	0.22
Education	1640	585	3.76	0.20	0.07
All Colleges	64539	27165	3.38	0.40	0.13

Table 3: Statistics for distributions in Figure 2

## 3.2 Statistical Significance

We use the 2 Sample Z-Test to show a statistically significant difference of means in the distributions in Figure 1. We assume that the sample of data we collect is of the population "generated" by an underlying mechanism — the behavior of course GPAs and student evaluations at UIUC.

We compute Z values of  $z = 35.8$  and  $z = 33.8$  for "outstanding" and at least "excellent", respectively, which is much higher than the standard significance level of  $z = 2$ .

## References

- [1] *CISAPP*. <https://courses.illinois.edu/cisapp/>. Accessed: 2025-8-19.
- [2] *List of Teachers Ranked as Excellent by Their Students*. [https://citl.illinois.edu/citl-101/measurement-evaluation/teaching-evaluation/teaching-evaluations-\(ices\)/teachers-ranked-as-excellent](https://citl.illinois.edu/citl-101/measurement-evaluation/teaching-evaluation/teaching-evaluations-(ices)/teachers-ranked-as-excellent). Accessed: 2025-8-18.
- [3] *wadefagen's Useful Datasets*. <https://github.com/wadefagen/datasets>. Accessed: 2025-8-18.