Analysis of professors' evaluation in Actuarial Sciences program at La Salle University

GABRIELA VERGARA ABASCAL SHERWELL, DIANA PATRICIA FLORES GALLEGOS, FRANCISCO JAVIER JIMÉNEZ JIMÉNEZ, MARTIN FLEGL

Abstract – **Professors' performance measured through students' evaluation in higher education has recently become very relevant. At La Salle University in Mexico City, each semester students provide feedback through online questionnaires in Institutional, Educative and Pedagogic areas. In this article we analyzed the evaluation of professors from Actuarial Sciences study program at the Business School for the August-December 2016 semester based on internal evaluation system SED 2.0. The results indicate that professors evaluated at highest positions in the overall evaluation not necessarily need to be evaluated at the highest positions in all three areas of the evaluation system. Moreover, the results reveal that elder male professors are generally better evaluated than younger professors or females.**

I. INTRODUCTION

Recently, the analysis of professors' performance has become very important being measured through students' evaluations at the end of each school period to ensure quality of education. These evaluations are important because they provide valuable information on students' perception of their educators. "Education researchers and policy makers agree that teachers differ in terms of quality, and that quality matters for student achievement." ([1]: 673). The better students perceive education within their university, the better the reputation of the university will be [2].

The most common areas for evaluating teaching quality are educative, didactic and pedagogic. However, these areas can differ from system to system, depending on the objectives of each institution. For example, [3] consider areas such as social and ethics or teaching and learning, whereas [4] use educative, pedagogic and institutional. [5] proposed a different categorization related to scholarship, organization/clarity, instructor-group interaction, instructor-individual student interaction and dynamism/enthusiasm. Regardless of the division, the main objective of the professors' evaluation is to understand the quality of teaching at each institution to secure its constant improvements. Several decisions can be made with the obtained information, such as supersede professors whose overall score is deficient [6].

At La Salle University in Mexico City, such evaluation is distributed electronically twice a year in June and December at the end of each semester respectively. Students from diverse faculties and study programs of the university evaluate their respective professors for the courses of the immediate previous semester. This evaluation is called System of professors' evaluation, commonly referred as SED 2.0 (Sistema de Evaluación Docente). This evaluation system was first distributed among students enrolled in the university during the August-December 2010 semester [4]. At the moment, SED 2.0 is being thoroughly reviewed to better understand students' opinion by improving the current tool. Evaluation SED 2.0 is divided into the three categories mentioned above: Institutional (INS), Pedagogic (PED) and Educative (EDU). The institutional area evaluates professor's profile from the university concept, the educative area evaluates professors with regard the graduates' profile and the pedagogic area evaluates professors regarding his/her teaching capacities inside the classroom. Each of the categories is evaluated through a total of 15 questions; 3 of them focus on the Institutional area, 6 on the Pedagogic area and the remaining 6 on the Educative area.

With the available historic information for the 13 semesters of evaluations of SED 2.0, little to none analysis has been made to understand and properly use this data [4]. On past researches using this data, the approach has been to understand several differences among faculties on the university. These differences can come from several aspects such as the gender or age of the professor, the type of evaluation or the scale used in it [7][8].

La Salle has seven faculties: School of Architecture, School of Chemistry, Law School, School of Humanities, School of Engineering, School of Medicine and Business School. Moreover, each of these faculties supervises distinct study programs. Due to the interest of constantly improve the quality of education, we aim to understand the evaluation carried out at the Actuarial Sciences study program at Business School. For this article we will focus on professors' who teach Actuarial Science courses at the Business School. Actuarial Science is taught through eight semesters, and each of these consists of six or seven courses according to the current study program. The analysis does not include courses from the common area (such as languages), as these are managed by different areas.

The objective of this article is to analyze the results from SED 2.0 evaluation at Actuarial Sciences at La Salle University to better understand the achieved results. Additional objective is to analyze whether there is a relation between professors' evaluation and their age and gender. For this purpose, we analyze separately the overall evaluation from the SED 2.0 and evaluation in all three areas.

Gabriela Vergara Abascal Sherwell, Diana Patricia Flores Gallegos, Francisco Javier Jiménez Jiménez belong to Actuarial Sciences study program. The article was elaborated during Decision-making course. (Emails: gabyvas92@hotmail.com, z_a_nessa@live.com, javier_jimz14@hotmail.com).

II. MATERIALS AND METHODS

Data

For the analysis, the sample consists of evaluations from SED 2.0 at Actuarial Science study program at Business School from August – December 2016, for which we were able to get the data. In this semester, the system has registered 1,802 students' evaluations throughout 8 semesters. In total, the Actuarial Science study program contains 51 courses. Those 51 courses were taught by 33 professors, out of those 7 (21.212%) were female professors and 26 (78.788%) male professors. Some professors can teach more than one course within the study program. In addition, as there can be more groups within a semester, each group can have different professor for the same course. However, if the same professor teaches more groups of the same course, then it is considered as one. The combination of one professor teaching one course will be referred as a subject henceforth. Therefore, the analysis includes 67 subjects. Out of those 67 subjects, 13 subjects (19.403%) were taught by female professors and 54 (80.597%) by male professors.

As it was mentioned in the introduction, the subjects are evaluated in three different areas (INS, EDU and PED). Each of the questions of the evaluation is graded from 0 to 10. Therefore, the overall score falls within the same scale. Table 1 summarizes the descriptive statistics of the evaluation in each area.

TABLE 1: DESCRIPTIVE STATISTICS OF SED 2.0 EVALUATION, AUGUST – DECEMBER 2016 (SOURCE: OWN CALCULATIONS)

	INS	EDU	PED
Min	4.020	3.775	4.730
Max	10.000	9.954	10.000
Average	8.799	8.776	9.105
SD	1.000	0.996	0.748

Analytical Hierarchy Process (AHP)

Analytic Hierarchy Process was developed by [9][10]. This method works with both qualitative and quantitative evaluation of preferences. To obtain criteria priorities, pairwise comparisons based on the fundamental verbal/numerical 1-9 scale is required (Table 5). The number of necessary comparisons for each comparison matrix is $n(n-1)/2$, where n is the number of criteria. Each criterion gains a geometric mean of its comparisons, which are then normalized.

An important requirement is to test consistency of our stated preferences, as human-made decisions can be mutually inconsistent because of the human nature. The most commonly used method for consistency check was developed by Saaty (1977), who proposed a consistency index (CI) related to eigenvalue method. CI is obtained as

$$\mathrm{CI} = \frac{\lambda_{max} - n}{n-1}, \tag{1}$$

where λ_{max} is the maximal eigenvalue of the pairwise comparison matrix. The consistency ratio (CR) is given by

$$\mathrm{CR} = \frac{\mathrm{CI}}{\mathrm{RI}}, \tag{2}$$

where RI is the random index obtained in Table 2.

TABLE 2: AHP – RANDOM INDICES [9]

n	3	4	5	6	7	8	9	10
RI	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

The priorities are considered consistent if the consistency ration is less than 10%. SuperDecisions software is used to count the criteria preferences and to test consistency of the preferences.

Technique of Order Preference Similarity to the Ideal Solution (TOPSIS)

The fundamental idea of TOPSIS is that the best solution is the one that has the shortest distance from the ideal solution, and vice versa the farthest distance from the inferior solution [11]. The performances of n alternatives a with respect to m criteria i are collected in decision matrix $X = (x_{ij})$, where $i = 1, 2, \dots, m$ and $j = 1, 2, \dots, n$. First, the performances of different criteria are normalized in order to be able to compare the measure of different units. Using the distributive normalization, we get

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{j=1}^{n} x_{ij}^2}}, \text{ for } i = 1, 2, \dots, m \text{ and } j = 1, 2, \dots, n. \tag{3}$$

The normalized performances r_{ij} are weighted with its corresponding weight w_i to get weighted normalized decision matrix as

$$v_{ij} = w_i \cdot r_{ij}. \tag{4}$$

Using the weighted normalized performances, we identify ideal and inferior alternatives considering the best and worst virtual performances. For the ideal alternative as

$$a^+ = (v_i^+, \dots, v_m^+) \tag{5}$$

and for the inferior alternative as

$$a^- = (v_i^-, \dots, v_m^-), \tag{6}$$

where $v_i^+ = \max(v_{ij})$ if the criterion i is to be maximized and $v_i^- = \min(v_{ij})$ if the criterion i is to be minimized.

To count the distance of each alternative from the ideal alternative, we get

$$d_i^+ = \sqrt{\sum_i (v_i^+ - v_{ij})^2}, \ i = 1, 2, \dots, m \tag{7}$$

and the distance from the inferior alternative as

$$d_i^- = \sqrt{\sum_i (v_i^- - v_{ij})^2}, \ i = 1, 2, \dots, m. \tag{8}$$

The closeness coefficient of each alternative to the ideal solution is obtained as

$$C_i = \frac{d_i^-}{d_i^+ + d_i^-}. \tag{9}$$

The closeness coefficient is always between 0 and 1, where 1 refers to the ideal (preferred) solution.

III. RESULTS

In this section, we will discuss the results from the analysis. First, we will discuss the importance of the different areas (INS, EDU, PED). Second, we will analyze the professors' evaluation by an overall model. Third, we will analyze the results for each area of the evaluation. Last but not least, we will discuss the achieved results regarding gender.

Calculating importance within the SED 2.0 evaluation

Even though we consider each of the aspects of the evaluation to be important, we determined a hierarchy from each of them. Together we defined that, out of the three aspects of the evaluation, the most important is EDU with the weight 63.699%, then PED (25.828%) and INS (10.473%). The inconsistency (CR) of this analysis is 3.703%. Moreover, we did the equivalent analysis for each of the aspects of the evaluation with the questions of SED 2.0 provided in Table 6. The three questions of the Institutional evaluation were ranked as following: INS 1 is the most important question with the weight 64.422%, followed by INS 2 (27.056%) and INS 3 (8.522%). The inconsistency of the comparison is 5.156%. The Educative questions were ranked as following: EDU 5 (40.861%), EDU 1 (28.060%), EDU 3 (13.406%), EDU 6 (8.779%), EDU 4 (5.838%) and EDU 2 (3.056%). The inconsistency of the comparison is 3.449%. Lastly, the six questions of Pedagogic area were ranked as following: PED 2 (39.427%), PED 5 (26.509%), PED 3 (17.838%), PED 4 (8.791%), PED 6 (4.355%) and PED 1 (3.080%). The inconsistency of this analysis is 3.439%.

Analysis of professors' evaluation

Considering the weights mentioned above, we made the correspondent TOPSIS analysis for the 67 subjects defined within the materials and methods section. Table 7 shows in detail the results obtained for this analysis. We have found that, for the overall evaluation, the best-ranked professor was a 45 years old female teacher, having a distance of 0.563% away from the ideal (the evaluation of 10 in all SED 2.0 questions). On the other hand, the worst evaluated professor was 37 years old male teacher whose distance to the ideal is 100%, i.e. this professor was evaluated as the worst in all questions with an average of 5.169 pts. It is worth mentioning that the average evaluation was 8.893 pts with average distance to the ideal evaluation of 19.161%.

We would like to make an emphasis on several observations. First, we notice that the best-ranked professor in total is not necessarily the best-ranked professor in every aspect of the evaluation. Actually, we can notice that the best-evaluated professor is ranked 17th in the Pedagogic area, resulting in an 11.361% distance to the ideal for that area. Similar to this case, second best-ranked professor, 57 years old male teacher has a 7.240% distance to the ideal in Institutional area, being ranked in 25th place. Like these cases, out of the ten best-evaluated professors, six are not in the top 10 of the different areas of the evaluation. In this case, the obtain results can be used as a basis for potential improvements in teaching quality. For example, the best evaluated professor has slight deficiencies related to her in-class activities. Similarly, professor 19 is as the best in INS and 7th in PED, however her evaluation in EDU is ranked as 35th best. This professor does not relate her classes with graduates' profile, e.g. does not relate course with the current social necessities and/or does not promotes students' problem-solving skills (Table 6).

We also notice that in the top 10, there is one female professor, that is 7.962% of the total female population, and nine male professors (16.667%). Also, nine of the professors are over the age of 42, which is the average age in the sample. This leads us to believe that more experienced male professors are generally better evaluated by students. To verify this, we used the χ^2 test to analyze whether older male professors have significantly better evaluation. We used the average age as a cut-off level between young and old. In the total evaluation, $p = 0.010$ confirms the assumption and older male professors have significantly better evaluation. This assumption was also proved in INS ($p = 0.074$) and EDU ($p = 0.010$), whereas was not significant in PED ($p = .238$).

We have some observations as well on the 10 worst evaluated professors. The worst evaluated professor is 37 years old male, and we can see that he is the worst in every aspect of the evaluation. We also note that 33 years old female teacher, ranked in the 60th position for the global evaluation, was ranked 37th in the Pedagogic area, a distance of 18.632% to the ideal in that area. Again, some professors do better in some areas and have deficiencies in others. We also see that all of the worst evaluated professors are ranked in the lower half of the evaluation in every aspect. In addition, four out of the ten professors are females, 30.769% of the female population, and only six are male (11.111%). Also, six of the ten worst evaluated professors are below the age of 42. This leads us to believe that younger teachers, and specially females, are worse evaluated than their counterparts. However, this assumption was not confirmed by the χ^2 test, in case of gender ($p = 0.372$) and age ($p = 0.742$) in total evaluation, similarly in each area.

Analysis of professors' evaluation in the Institutional, Educative and Pedagogic areas

Going further into the results, there are some interesting remarks. When analyzing the Institutional area, we have two professors who got the perfect score that semester, one 45 years old male teacher who is ranked 10th in the general evaluation and a 59 years old female teacher (19th). Two of the top 10 best-evaluated professors for Institutional area were not in the top 10 best-evaluated professors in the total evaluation. Equivalently, four out of the ten worst evaluated professors for this area were not in the worst top 10 evaluated professors in the total evaluation. The average score obtained in Institutional area was 84.287%, with an average distance to the ideal of 15.713%.

In the Educative area, the highest score was 98.563%, which translates into a 1.437% distance to the ideal. Although no perfect scores were obtained in this part, the four best-ranked professors in Educative area were, in the global evaluation, also the four best-ranked professors. Similarly, the seven worst evaluated professors for Educative area were also the seven worst evaluated professors in total.

Lastly, in the Pedagogic area, four of the best-evaluated professors in the area were not in the overall best ten evaluated professors. And three of the worst evaluated professors in Pedagogic area were not in the worst top 10 evaluation. The highest score obtained in this area was 97.450%, which means a 2.550% distance to the ideal score. The results here discussed are summarized in Table 3 and Table 4.

TABLE 3: SCORES PER AREA OF EVALUATION, AUGUST – DECEMBER 2016 (SOURCE: OWN CALCULATIONS)

	TOT	INS	EDU	PED
Max	99.437%	100.000%	98.563%	97.450%
Min	0.000%	1.124%	0.000%	1.744%
Average	80.839%	84.287%	81.001%	79.133%
SD	16.618%	15.193%	17.149%	15.507%

TABLE 4: DISTANCES TO THE IDEAL SCORES, AUGUST – DECEMBER 2016 (SOURCE: OWN CALCULATIONS)

	TOT	INS	EDU	PED
Min	0.563%	0.000%	1.437%	2.550%
Max	100.000%	98.876%	100.000%	98.256%
Average	19.161%	15.713%	18.999%	20.867%
SD	16.618%	15.193%	17.149%	15.507%

IV. DISCUSSION

We must keep in mind that the results discussed in the previous section are the product of a combination of weights proposed by the authors and the evaluation from SED 2.0. If such weights were to change we would most likely obtain different results. As it was expected from the construction of the analysis, the highest influence on the global evaluation was the Educative area. However, the Pedagogic area shows biggest differences comparing the overall evaluation (Table 7). Thus, some professors might have problems to adapt their courses to students' needs. Positive and negative evaluation is directly linked to students' interest about a course. The higher the interest is, the better the evaluation is [12].

The objective of the article was to analyze the results of the SED 2.0 evaluation at Actuarial Sciences study program. Further, we aimed to observe if professors' age and gender were important factors when evaluating a teacher. We have seen that a teacher does not necessarily have to be outstanding in every area of the evaluation to be considered a good teacher. However, these results provide us with insight on what particular professors must focus on improving in order to obtain higher grades in their evaluations. Although we looked into questions of the three areas of SED 2.0, for deeper understating of what is considered important by students, a similar analysis could be made within the questions. Throughout this article we have seen that, although there are considerably more male teachers than females in Actuarial Science, the distribution by gender among the upper and lower halves of the evaluation is almost 50%. In the case of age, we observe a higher percentage of professors over the age of 42 in the upper half of the evaluation. This result corresponds with similar published research. Usually, male and attractive professor receives better evaluation than a female professor [13][14][15].

A similar analysis could be conducted for the January-June 2017 semester, i.e., the next consecutive semester following the one of this analysis. This new research would provide insight on the decisions made by authorities regarding the results from the evaluation analyzed in this article. Furthermore, it would show whether there is a trend on evaluation of the professors in Actuarial Science at La Salle or it radically changes each semester.

V. CONCLUSIONS

Measuring professors' performance has become significantly important in higher education. In order to do so, students are required to provide feedback through evaluations. At La Salle University, at the end of each semester students evaluate their professors for the corresponding term in an online distributed questionnaire. In this article we analyzed the professors' evaluation in Actuarial Science from Business School for the August-December 2016 semester. The database contained information from professors' evaluation in three areas: Institutional, Educative and Pedagogic, and also the overall score. The analysis conducted aimed to determine whether the scores given by students are influenced by gender and age of the professor. To conduct the analysis, we applied AHP and TOPSIS, both Decision-making methods, to the database. We have found that, in absolute terms ad for best evaluated professors, age and gender of the professors do impact their score at the end of each semester. We observed that students give higher grades to elder male professors than to younger professors or females. For instance, nine of the ten best-evaluated professors are males, and out of those, eight are above 42 years old.

Even though this research has provided with important insights regarding SED 2.0 and students' preferences, much can still be done. As stated previously, little to none research has been made with this vast information. To further understand the evaluation system, data from past and future semesters can be analyzed to check for consistency with the results here presented. New research can lead to finding out subjacent factors that influence the evaluation that we have not considered on this analysis. It is important to mention that by the time this article is submitted, the newer version of SED 2.0 will be distributed among students. SED 3.0 surely will lead to a greater understanding of professors' evaluation in higher education at La Salle University.

VI. ACKNOWLEDGMENTS

The authors specially thank La Salle University for granting us the access to their extensive database of professors' evaluation for the August – December 2016 semester.

VII. REFERENCES

[1] Clotfelter, C.T., Ladd, H.F. and Vigdor, J.L. (2007) 'Teacher credentials and student achievement: Longitudinal analysis with student fixed effects', *Economics of Education Review*, vol. 26, pp. 673-682. http://dx.doi.org/10.1016/j.econedurev.2007.10.002

[2] Xiao, J. and Wilkins, S. (2015) 'The effects of lecturer commitment on student perceptions of teaching quality and student satisfaction in Chinese higher education', Journal of Higher Education Policy and Management, vol. 37, no. 1, pp. 98-110. https://doi.org/10.1080/1360080X.2014.992092

[3] Hein, N., Kroenke, A., Rodrigues Júnior, M.M. (2015) 'Professor Assessment Using Multi-Criteria Decision Analysis', *Procedia Computer Science*, vol. 55, pp. 539:548. http://dx.doi.org/10.1016/j.procs.2015.07.034

[4] Flégl M., Fortoul Ollivier M.B., Švec V., Brand Barajas J. and Vizuet Ch. (2017) 'Analysis of Professors' Evaluation at La Salle University México from 2010 to 2016: What the Results Indicate?', *Journal on Efficiency and Responsibility in Education and Science*, vol. 10, no. 3, pp. 76-85. http://dx.doi.org/10.7160/eriesj.2017.100303

[5] Leventhal, L., Perry, R. and Abrami, P. (1977) 'Effects of lecturer quality and student perception of lecturer's experience on teacher ratings and student achievement', *Journal of Educational Psychology*, vol. 69, pp. 360–374. http://dx.doi.org/10.1037/0022-0663.69.4.360

[6] Becker, W.E. and Watts, M. (2011) 'How Departments of Economics Should Evaluate Teaching', *American Economic Review (Papers and Proceedings)*, vol. 89, no. 2, pp. 344-349. http://dx.doi.org/10.1257/aer.89.2.344

[7] Flégl, M., Roa Rivas, K.X., Vergara Abascal Sherwell, G. and Monroy Jiménez, M.A. (2017) 'On Alternative Methodology for Increasing Discrimination Ability in the System of Professors' Evaluation', *Proceedings of the 14th International Conference on Efficiency and Responsibility in Education (ERIE 2017)*, pp. 96-103.

[8] Flegl, M., Fortoul Ollivier, M.B. and Brand Barajas, J. (2017). Análisis de evaluación docente en la Facultad de Ingeniería en la Universidad La Salle, México. *Congreso Nacional de Investigación Educativa (COMIE)*, San Luis Potosí: 1-13.

[9] Saaty, T.L. (1977) 'A Scaling Method for Priorities in Hierarchical Structures', *Journal of Mathematical Psychology*, vol. 15, no. 3, pp. 234-281. http://dx.doi.org/10.1016/0022-2496(77)90033-5

[10] Saaty, T.L. (1980) *The Analytic Hierarchy Process*, New York: McGrawHill.

[11] Ishizaka, A. and Nemery, P. (2013) *Multi-Criteria Decisions Analysis*. 1st edition, John Wiley & Sons.

[12] Leung, X.Y., Jiang, L. and Busser, J. 2013. Online student evaluations of hospitality professors: A cross-cultural comparison. *Journal of Hospitality, Leisure, Sport & Tourism Education*, vol. 12, no. 1, pp. 36–46. http://dx.doi.org/10.1016/j.jhlste.2012.10.001

[13] Basow, S.A. 2000. Best and Worst Professors: Gender Patterns in Students' Choices. *Sex Roles*, vol. 43, no. 5, pp. 407-417. http://dx.doi.org/10.1023/A:1026655528055

[14] Felton, J., Koper, P.T., Mitchell, J. and Stinson, M. 2008. Attractiveness, easiness and other issues: student evaluations of professors on Ratemyprofessors.com. *Assessment & Evaluation in Higher Education*, vol. 33, no. 1, pp. 45-61. http://dx.doi.org/10.1080/02602930601122803

[15] Silva, K.M., Silva, J.F., Quinn, M.A., Draper, J.N., Cover, K.R., and Munoff, A.A. 2008. Rate My Professor: Online Evaluations of Psychology Instructors. *Teaching of Psychology*, vol. 35, no. 2, pp. 71-80. http://dx.doi.org/10.1080/00986280801978434

APPENDIX

TABLE 5: AHP – FUNDAMENTAL SCALE [7]

Intensity of importance on an absolute scale	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance of one over another	Experience and judgment strongly favor one activity over another
5	Essential or strong importance	Experience and judgment strongly favor one activity over another
7	Very strong importance	An activity is strongly favored, and its dominance demonstrated in practice
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2, 4, 6, 8	Intermediate values between the two adjacent judgments	When compromise is needed
Reciprocals	If activity *i* has one of the above numbers assigned to it when compared with activity *j*, then *j* has the reciprocal value when compared to *i*	
Rationales	Rations arising from the scale	If consistency were to be forced by obtaining *n* numerical values to span the matrix

TABLE 6: QUESTIONS OF THE SED 2.0 EVALUATION (SOURCE: OWN ELLABORATION)

No.	Area	Question
1	INS	The professor treats you respectfully.
2	INS	The professor encourages a mutual help environment in the classroom.
3	INS	The professor promotes consideration of social impact topics.
4	EDU	The professor thrusts your ability to solve problems of the subject.
5	EDU	The professor links the course with the current social necessities.
6	EDU	The professor is an example to follow in the professional practice.
7	EDU	The professor promotes the use of IT to stimulate the learning process.
8	EDU	The professor transmits with clarity the content of the course.
9	EDU	The professor propitiates the use of diverse sources to obtain information.
10	PED	The professor efficiently manages the class's time.
11	PED	The professor masters the topics of the course and relates them to the professional activity.
12	PED	The professor propitiates an adequate environment in class for students' participation and resolution of doubts.
13	PED	The professor uses didactic and technological resources.
14	PED	The professor encourages applicable learning activities in the professional practice.
15	PED	The professor feeds the performance of the students in assignments, projects, exams, essays and reports.

TABLE 7: RESULTS OF TOPSIS ANALYSIS, AUGUST – DECEMBER 2016 (SOURCE: OWN CALCULATIONS)

Professor ID	Gender	Age	Course	Semester	TOTAL	INS	EDU	PED
Prof 1	Female	45	Basics of Structured Programming	2	**99.437% (1)**	**97.384% (5)**	**98.563% (1)**	88.639% (17)
Prof 2	Male	57	Statistics II	5	**98.667% (2)**	92.760% (25)	**98.378% (2)**	**97.337% (2)**
Prof 3	Male	45	Special Insurance	8	**98.353% (3)**	94.954% (13)	**96.985% (3)**	**96.321% (4)**
Prof 4	Male	47	Numerical Methods	5	**97.164% (4)**	**96.033% (10)**	**96.936% (4)**	**97.450% (1)**
Prof 5	Male	61	Macroeconomics	6	**96.429% (5)**	92.263% (26)	**93.912% (10)**	83.985% (33)
Prof 6	Male	47	Financial Engineering	8	**95.394% (6)**	**97.991% (3)**	90.795% (20)	88.893% (16)
Prof 7	Male	31	Operations Research II	5	**95.095% (7)**	**97.361% (6)**	**95.966% (6)**	**96.746% (3)**
Prof 8	Male	45	Non-life Insurance	3	**95.094% (8)**	**96.299% (9)**	**95.994% (5)**	**94.744% (6)**
Prof 9	Male	56	Stock Market Analysis	6	**94.959% (9)**	**97.958% (4)**	92.672% (15)	84.069% (32)
Prof 10	Male	45	Risk Theory	6	**94.614% (10)**	**100.000% (1)**	**95.868% (8)**	**96.198% (5)**
Prof 11	Male	56	Corporate Finance II	5	94.399% (11)	93.664% (20)	92.345% (16)	**92.473% (8)**
Prof 12	Male	38	Management of Financial Risks	7	94.059% (12)	94.120% (17)	92.968% (13)	**92.408% (9)**
Prof 13	Male	57	Multivariate Statistics	7	93.918% (13)	84.471% (43)	**94.562% (9)**	89.757% (13)
Prof 14	Male	42	Game Theory	7	92.059% (14)	92.818% (24)	92.951% (14)	**90.652% (10)**
Prof 15	Male	38	Analytical Geometry II	2	92.786% (15)	96.030% (11)	91.722% (18)	90.628% (11)
Prof 16	Male	31	Operations Research I	4	92.674% (16)	91.866% (27)	92.201% (17)	85.399% (28)
Prof 17	Male	45	Introduction to Insurance	1	92.115% (17)	**97.274% (8)**	**95.915% (7)**	88.143% (21)
Prof 18	Male	37	Multivariate Statistics	7	91.799% (18)	93.906% (19)	89.871% (24)	88.071% (22)
Prof 19	Female	59	Insurance for Individuals	2	91.723% (19)	**100.000% (1)**	83.821% (35)	**93.491% (7)**
Prof 20	Male	38	Non-life Insurance	3	91.345% (20)	94.516% (15)	88.270% (28)	86.689% (25)
Prof 21	Female	51	Financial Accounting	2	90.426% (21)	94.561% (14)	93.364% (12)	76.257% (47)
Prof 22	Female	59	Retirement Plans	7	90.054% (22)	87.462% (37)	83.207% (37)	82.882% (34)
Prof 23	Male	29	Demographics Models	4	89.984% (23)	93.308% (21)	89.904% (23)	85.263% (29)
Prof 24	Male	31	Simulation Techniques	7	89.907% (24)	87.158% (38)	89.198% (27)	82.116% (35)
Prof 25	Male	38	Introduction to Insurance	1	88.697% (25)	90.326% (32)	91.371% (19)	86.343% (26)
Prof 26	Male	63	Actuarial Calculus I	4	88.261% (26)	89.646% (33)	87.870% (29)	89.043% (15)
Prof 27	Female	41	Probability I	2	88.234% (27)	95.394% (12)	85.875% (34)	89.474% (14)
Prof 28	Female	41	Statistics I	3	87.979% (28)	**97.354% (7)**	82.827% (38)	88.188% (20)
Prof 29	Male	47	Actuarial Calculus II	5	87.759% (29)	87.799% (36)	89.660% (26)	90.115% (12)
Prof 30	Male	37	Forecasting Methods	8	87.331% (30)	94.400% (16)	87.121% (31)	88.324% (19)
Prof 31	Female	33	Integral Calculus	2	87.022% (31)	94.097% (18)	93.673% (11)	88.457% (18)
Prof 32	Male	31	Decision Making Theory	8	86.624% (32)	90.722% (31)	82.499% (39)	78.942% (42)
Prof 33	Male	52	Stock Markets	5	85.627% (33)	79.296% (47)	83.301% (36)	84.478% (31)
Prof 34	Male	47	Differential Equations	4	85.015% (34)	91.194% (30)	90.559% (21)	87.294% (24)
Prof 35	Female	59	Interest Theory	1	84.715% (35)	93.268% (23)	90.265% (2)	85.775% (27)
Prof 36	Male	34	Advanced Algebra II	2	84.023% (36)	89.631% (34)	89.782% (25)	84.480% (30)
Prof 37	Male	34	Stochastic Processes	6	83.873% (37)	**56.744% (65)**	87.163% (30)	78.179% (44)
Prof 38	Male	34	Differential Calculus	1	83.861% (38)	91.664% (29)	76.120% (49)	87.885% (23)
Prof 39	Male	49	Introduction to Administration	1	82.583% (39)	88.776% (35)	87.024% (32)	77.501% (45)
Prof 40	Male	50	Administration of Financial Institutions	6	82.104% (40)	74.889% (54)	78.562% (47)	79.576% (40)
Prof 41	Male	34	Probability II	4	81.554% (41)	76.655% (52)	80.223% (46)	70.714% (54)
Prof 42	Male	34	Simulation Techniques	7	80.814% (42)	87.080% (39)	82.421% (40)	73.487% (51)
Prof 43	Male	42	Econometrics	8	80.081% (43)	71.576% (57)	81.559% (42)	73.796% (50)
Prof 44	Male	34	Integral Calculus	2	78.237% (44)	78.721% (49)	80.870% (43)	70.479% (55)
Prof 45	Male	38	Analytical Geometry I	1	77.492% (45)	80.685% (45)	81.726% (41)	78.931% (43)
Prof 46	Male	61	Microeconomics	3	77.085% (46)	93.282% (22)	**69.216% (58)**	81.122% (39)
Prof 47	Male	47	Corporate Finance I	4	75.925% (47)	**67.614% (60)**	75.006% (51)	79.571% (41)
Prof 48	Male	39	Introduction to Insurance	1	74.464% (48)	80.632% (46)	76.500% (48)	67.266% (57)
Prof 49	Male	34	Analytical Geometry I	1	74.171% (49)	91.688% (28)	86.475% (33)	76.707% (46)
Prof 50	Male	43	Brank, Credit and Risk	7	73.876% (50)	76.875% (51)	72.720% (55)	**62.204% (61)**
Prof 51	Female	27	Retirement Plans	7	73.663% (51)	85.363% (41)	**67.891% (60)**	**63.407% (59)**
Prof 52	Male	31	Regression Analysis and Time Series	6	73.586% (52)	**67.106% (61)**	**67.904% (59)**	76.235% (48)
Prof 53	Male	45	Databases	3	73.233% (53)	**71.427% (58)**	74.307% (53)	81.307% (38)
Prof 54	Male	54	Introduction to Programming	1	73.149% (54)	78.166% (50)	72.128% (56)	76.147% (49)
Prof 55	Male	34	Advanced Algebra I	1	72.519% (55)	85.036% (42)	70.830% (57)	**58.584% (63)**
Prof 56	Male	34	Probability I	2	72.357% (56)	72.520% (56)	75.045% (50)	72.023% (52)
Prof 57	Male	31	Differential Calculus	1	71.117% (57)	85.434% (40)	80.571% (45)	81.657% (36)
Prof 58	Male	47	Management of Financial Risks	8	**70.867% (58)**	**66.570% (62)**	74.079% (54)	**63.806% (58)**
Prof 59	Male	34	Lineal Algebra	3	**67.987% (59)**	84.282% (44)	74.855% (52)	71.275% (53)
Prof 60	Female	33	Vector Calculus	3	**64.293% (60)**	78.817% (48)	80.692% (44)	81.368% (37)
Prof 61	Male	39	Interest Theory	1	**62.193% (61)**	76.460% (53)	**63.010% (61)**	**63.107% (60)**
Prof 62	Male	34	Analytical Geometry I	1	**58.525% (62)**	**55.808% (66)**	**60.379% (62)**	**51.641% (64)**
Prof 63	Female	43	Advanced Algebra I	1	**51.582% (63)**	**68.776% (59)**	**58.797% (63)**	67.527% (56)
Prof 64	Female	27	Management of Financial Risks	8	**51.274% (64)**	74.845% (55)	**50.093% (64)**	**36.509% (66)**
Prof 65	Female	45	Introduction to Programming	1	**45.299% (65)**	**58.267% (64)**	**40.184% (65)**	**59.190% (62)**
Prof 66	Male	63	Interest Theory	1	**33.869% (66)**	**63.039% (63)**	**19.552% (66)**	**49.441% (65)**
Prof 67	Male	37	Demographic Analysis	4	**0.000% (67)**	**1.124% (67)**	**0.000% (67)**	**1.744% (67)**
Average					80.839%	84.287%	81.001%	79.133%
Standard Deviation					16.618%	15.193%	17.149%	15.507%