

# Academic and Licensure Examination Performance of the Bachelor in Science in Agricultural Biosystems Engineering Graduates

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## Abstract

One of the most notable achievements of all undergraduate program offerings in the Philippines is the graduate's distinctive cognitive ability in the Professional Regulation Commission (PRC) licensure exam. Similarly, licensure outcomes may demonstrate the caliber and efficacy of their institutions' teaching environment. Also, maintaining regular accreditation entails a good licensure examination performance of graduates. This study evaluated the academic and licensure examination performance of the BSABE first time takers from calendar year 2018-2022. The study employed a Pearson product-moment correlation coefficient to examine the association between the graduate's academic performance and licensure examination performance. Moreover, the graduates' academic performance and results of their licensure examination were evaluated using the measures of central tendency and the measures of dispersion. Consequently, the academic performance of the graduates has a "good" interpretation based on their general grade weighted average. However, a "failed" interpretation in their licensure examination rating was deduced "having a mean below 70 percent. Generally, no significant relationship was revealed in the study between the academic performance and the licensure examination rating. Furthermore, the study suggests that the College of Engineering should implement strict compliance of CHED policy and standards such as ; tighten its admission and retention criteria, update course syllabi, and revisit the curriculum.

**Keywords:** *Academic Performance, Licensure Performance Examination, graduates*

## Introduction

The academic society, particularly higher education learning institutions, undergoes numerous quality accreditation level upgrades on a regular basis. According to Prado N, 2020, quality programs and best practices were important in achieving the institution's vision, mission, goals, and objectives. AACUP is one of the accrediting bodies that rigorously validates the quality of academic institutions' education based on their compliance, service, and performance. As cited by Kingsbury 2007a, the University faces a challenge in maintaining quality education services, which include transparency, excellence, and accountability. Accreditation systems are also used to achieve the level of excellence ( Hernes, Martin 2002). The Bachelor of Science in Agricultural and Biosystems Engineering program is now level 3 phase 1 accredited, however there is a frail graduate's performance in the licensure examination that requires careful attention. As a result, in order to maintain and upgrade the level of accreditation, a study on academic performance and ABE licensure examination performance will be

conducted to determine graduates' course mastery and licensure examination weaknesses. The study will also investigate the graduates academic and licensure examination performance relationship.

### **Statement of the Problem**

This study will determine the graduate's of Bachelor in Science in Biosystem Engineering ( BSABE) licensure examination performance. In particular, this study will determine the following:

1. What is the academic performance of the graduates, in terms of:
  - 1.1 General grade average;
  - 1.2 Major 1 grade weighted average;
  - 1.3 Major 2 grade weighted average;
  - 1.4 Major 3 grade weighted average?
2. What is the licensure examination performance of graduates in terms of:
  - 2.1 Licensure examination rating;
  - 2.2 Graduates Major 1 licensure examination rating;
  - 2.3 Graduates Major 2 licensure examination rating;
  - 2.4 Graduates Major 3 licensure examination rating?
3. Do graduates' academic and licensure performance ratings have a substantial correlation?
4. Do graduates' major academic achievements and their major licensure performance ratings have a substantial correlation?

### **2. Research Design**

The performance of the graduates on the licensure examination as well as their academic achievements, such as PRC results and college GWA, were assessed using a descriptive-correlational approach.

### **Respondents of the Study**

The study's participants are BSABE graduates who took the licensure examination for Agricultural Biosystems Engineering in August 2018, October 2019, September 2021, and September 2022. Graduates who were taking the exam for the first time only make up the data. Using a full count of the respondents, there were a total of 24 graduates.

### **Data Collection Procedure**

The primary objective was to obtain the approval of both the University President and Campus administrator for conducting the study. Once the University's approval was obtained, formal request letters were sent to obtain the academic records of the graduates, including their college Grade Weighted Average (GWA). Furthermore, a formally endorsed request letter was forwarded to the Commissioner of the Professional Regulation Commission (PRC), which sought to secure the names and ratings of both board passers and non-board passers from August 2018, October 2019 to September 2021, and September 2022. The endorsement was provided by both the University President and the Professional Regulation Commission Regional Office (PRC RO8)

**Data Analysis**

The graduate academic performance and ABE licensure performance were described using measures of central tendency (mean) and dispersion (standard deviation).. They are classified with the following descriptive values: 95% and above: Outstanding;94%-90%: Excellent; 89%-85%: Very Good; 84%-80%: Good; 70-79%- Fair, 69 and below, Failed:( ESSU system descriptive rating). Pearson product-moment correlation coefficient  $r$  was utilized to test the relationship between the graduates’ academic achievements and ABE licensure performance. The strength of correlation was construed based on the guideline utilized by Dagdag, et al. and suggested by Evan’s (1996) interpretation, namely: 0.00-0.19: very weak, 0.20-0.39: “weak”, 0.40-.59: “moderate”, .60-.79 “strong”, 8.0-1.0 “very strong”..

**RESULTS AND DISCUSSION**

Table 1, displays the BSABE graduates academic performance grade weight average has  $M = 2.27$  and  $SD = 0.438$  showed a good academic performance. The major 1 includes the following courses :Agricultural Mechanization, Power, Machinery and Equipment, and Allied Subjects which has a  $M = 2.12$  and  $SD = 3.59$  , a “good “performance”. Their major 2 courses coverage are on Soil and Water Resources Development and Conservation, Irrigation, Drainage and Allied Subjects with a  $M = 2.32$  and  $SD = 0.284$  shows “ good performance .The courses for major 3 represents are ; Rural Electrification, Agricultural processing, Agricultural Structures and Allied Subjects which has computed  $M = 2.21$  and  $SD = 0.292$ , displays “good” academic performance of respondents.

Table 1. Academic Performance of Bachelor of Science in Agricultural and Biosystems Engineering Graduates

Curriculum	Academic Achievement	Mean	Standard Deviation	Descriptive Value
BSABE	Grade weight average	2.27	0.438	Good
Major 1	Grade weight average	2.12	0.359	Good
Major 2	Grade weight average	2.32	0.284	Good
Major 3	Grade weight average	2.21	0.292	Good

Table 2 displays the BSABE graduates licensure performance rating. The first time takers graduates from August 2018, October 2019, September 2021 and September 2022 has  $M = 58.93$  and  $SD = 10.18$  which implies “failed” performance of the graduates. Specifically the coverage of the licensure examination has three major components major 1 has  $M = 63.08$  and  $SD = 8.99$ , implicates “failed” performance, another component is M2 has  $M = 55.45$  and  $SD = 13.35$ , also a “failed” graduates performance in the course coverage. Lastly, major 3 has mean,  $M = 58.2$  and  $SD = 10.77$ , also graduates demonstrated “failed” performance licensure rating. Consequently, Rankine theory of failure will likely occur when the examinee answers during the exam (primary stress) corresponds to the wrong choices of the appropriate responses for each item (tensile point) .

Table 2. Licensure examination performance of Bachelor of Science in Agricultural and Biosystems Engineering Graduates

PRC Licensure Coverage	Licensure Performance	Mean	Standard Deviation	Descriptive Value
BSABE	Rating	58.93	10.18	Failed
Major 1	Rating	63.08	8.99	Failed
Major 2	Rating	55.45	13.35	Failed
Major 3	Rating	58.25	10.77	Failed

Table 3 depicts the relationship of the academic performance and the licensure examination of the examinees with a  $\rho$ -value of 0.406 “not significant” and R-value of -0.174 with an interpretation of “negatively very weak”. The result of  $\rho$ -value implies that there is no significant relationship between academic performance and licensure examination performance. Also R- value result infers an opposite direction of data, a good performance corresponds to a failed licensure examination rating and a passed licensure examination rating corresponds to a fair academic performance. Hence, a weak negative correlation exists between the academic performance of graduates and their performance in the licensure examination, regardless of whether they passed or failed the examination. Supported by Barreda, Manilyn, (2022), occurs a weak negative association between graduates who passed the licensure exam, academic requirements and those who failed it.

Table 3. Correlation between the BSABE graduates academic achievement and licensure examination performance

Academic Performance	Licensure Examination Performance	P value	R value	Performance Interpretation
BSABE	BSABE	0.406	-0.174	Very weak N

Table 4 shows the major components academic performance and the licensure examination performance relationship. The  $\rho$ -value result leads to the conclusion that among graduates, there is no statistically significant relationship between the key elements of academic performance and the rating of the graduates performance on the licensure examination which contradicts the study of Lozarita et al. (2009), implying that the academic performance has a significant relationship with licensure examination rating.

Table 4. Correlation between the BSABE graduates academic achievement and licensure examination performance

Academic Performance	Licensure Examination Performance	P value	R value	Performance Interpretation
M1	M1	0.882	-0.301	Weak N
M2	M2	0.134	-0.308	Weak N
M3	M3	0.134	-0.308	Weak N

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Achieving outstanding results in the undergraduate program licensure examinations administered by the Professional Regulation Commission (PRC) is the foremost objective for any Higher Education Institution (HEI) and State University and College (SUC) in the Philippines. However, the Bachelor of Science in Agricultural Biosystems in Engineering have difficulty in conquering higher number of passers in BSABE licensure examination. The study revealed that the graduate's academic performance has no bearing on the licensure examination rating, conversely, the licensure examination rating is unaffected by the graduates' academic performance. There is a very weak negative correlation in the academic performance and licensure examination rating of graduates from 2018 to 2022 first time takers. Also, a weak negative correlation was revealed in the major courses academic performance and major components licensure examination rating. Generally, no significance of relationship was revealed in the study between the academic performance and the licensure examination rating. It is therefore advised that the College of Engineering strengthen its admission and retention policies, revise the program curriculum, update course syllabi in accordance with CHED policy and standards, and strengthen the delivery of instruction in order to improve students' learning outcomes. Also, encourage faculty to complete their postgraduate studies and consistently attend training sessions and seminars with the administration's full support.

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