

ETS® Proficiency Profile Report

Introduction

The ETS® Proficiency Profile (PP) was adopted for the second year in replacement to the CAAP exam as a measure of attainment of general education outcomes at the junior level, as the CAAP exam was suspended by ACT last year. The ETS® Proficiency Profile (PP) can assist us in the assessment of the outcomes of general education programs in order to improve the quality of instruction and learning.

The ETS® Proficiency Profile (PP) is a test of college-level skills in critical thinking, reading, writing and mathematics designed to measure the academic skills developed through general education courses, rather than the subject knowledge specifically taught in those courses. It is a 108 item test that is administered in a single two-hour session.

Subjects and Skills Covered by PP

Table 1 provides a listing of outcomes assessed by ETS PP in each of the four subjects.

Table 1. Outcomes Measured by ETS Proficiency Profile

Subject	Outcomes. Students' ability to
Reading	▪ interpret the meaning of key terms ▪ recognize the primary purpose of a passage ▪ recognize explicitly presented information ▪ make appropriate inferences ▪ recognize rhetorical devices
Writing	▪ recognize the most grammatically correct revision of a clause, sentence or group of sentences ▪ organize units of language for coherence and rhetorical effect ▪ recognize and reword figurative language ▪ organize elements of writing into larger units of meaning
Critical Thinking	▪ distinguish between rhetoric and argumentation in a piece of nonfiction prose ▪ recognize assumptions ▪ recognize the best hypothesis to account for information presented ▪ infer and interpret a relationship between variables ▪ draw valid conclusions based on information presented
Mathematics	▪ recognize and interpret mathematical terms ▪ read and interpret tables and graphs ▪ evaluate formulas ▪ order and compare large and small numbers ▪ interpret ratios, proportions, and percentages ▪ read scientific measuring instruments ▪ recognize and use equivalent mathematical formulas or expressions

Most of the reading and critical thinking questions are based on information presented in a brief reading selection, picture, graph, etc. Each question measuring critical thinking or reading skills is associated with a particular academic *context*: humanities, social sciences or natural sciences. Table 2 presents the structure of the ETS PP:

Table 2. Standard Form Structure

	Critical Thinking	Reading	Writing	Mathematics
Humanities	9 questions	9 questions	27 questions	27 questions
Social Sciences	9 questions	9 questions		
Natural Sciences	9 questions	9 questions		

PP Reports and Scores

The ETS Proficiency Profile test yields two types of scores:

1. scaled scores, which are numeric and norm-referenced
The following scaled scores are provided by institution and for each student
 - Total Score
 - Skills Subscores (CT, Reading, Writing, Mathematics)
 - Context-Based Subscores: Humanities, Social Sciences, and Natural Sciences.

2. proficiency classifications, which are categorical and criterion-referenced

A Roster of Proficiency Categories, showing institutional and each student's classifications as *proficient*, *marginal* or *not proficient* at each proficiency level in reading and critical thinking, writing and mathematics is provided.

Administration of ETS Proficiency Profile

The ETS Proficiency Profile was administered in February to a sample of junior level students from all faculties, except faculty of medicine. A representative sample of around 800 junior students was selected to take the tests but despite reminders only 62 students took the test broken down by faculty as follows:

Table 3. Sample Broken Down by Faculty

Faculty	Students Number
FAS	33
FAFS	4
FHS	2
FEA	15
OSB	7
SNU	1
Total	62

Results

1. Numeric Norm referenced Scaled Scores

Table 4 reports AUB total scaled score on the PP in addition to skill subscores and context-based subscores. In addition, the table reports descriptive comparative normative data of doctoral/research institutions who participated in the 2019 PP administration in terms of institutions (21) and students (8,912).

Table 4. AUB Proficiency Profile Scores Compared to Doctoral/Research Universities Junior Students

	AUB (N=62)		Norms (N=21)		AUB Percentile	Norms (N=8,912)	AUB Percentile
	Mean	SD	Mean	SD	Institutions	Students	By Students
Total Score (400-500)	452	16.62	447.0	10.6	62	452.3	48
Skills Subscores: (Range 100-130)							
Critical Thinking	111.9	5.8	111.9	2.6	38	113.3	42
Reading	117.8	6.5	118.3	2.9	33	119.5	34
Writing	115.2	4.5	114.8	2.1	52	115.7	38
Mathematics	120.9	4.5	114.8	3.4	90	116.8	66
Context-Based Subscores: (Range 100-130)							
Humanities	117.2	6.5	114.7	2.5	86	116.1	50
Social Sciences	111.7	5.8	113.6	2.5	14	114.6	36
Natural Sciences	114.8	5.5	115.5	2.4	29	116.8	34

AUB's mean total scaled score of 452 is higher than that of the mean for the 21 institutions of 447.0 when institutional means are taken and is similar when student means are considered which is 452.3. AUB's total score this year is higher than last years of 449.9 though sample is smaller.

With respect to skills subscores, AUB's highest performance is on mathematics, followed by reading and writing, and the lowest is on critical thinking. On these skills, AUB performed significantly higher than norms in mathematics only, scored same on writing, reading and critical thinking when compared to institutions but was significantly lower on reading and critical thinking when taking institutional norms. Compared to 2018, AUB means slightly improved on all skills subscores except in math which stayed the same, and this was confirmed by AUB's percentile rank which improved on critical thinking and reading from 19ile to 38 and 33, respectively and for writing from 33ile to 50th. However, when taking student population and not institutions, slight mean improvement showed only small changes in percentile ranks.

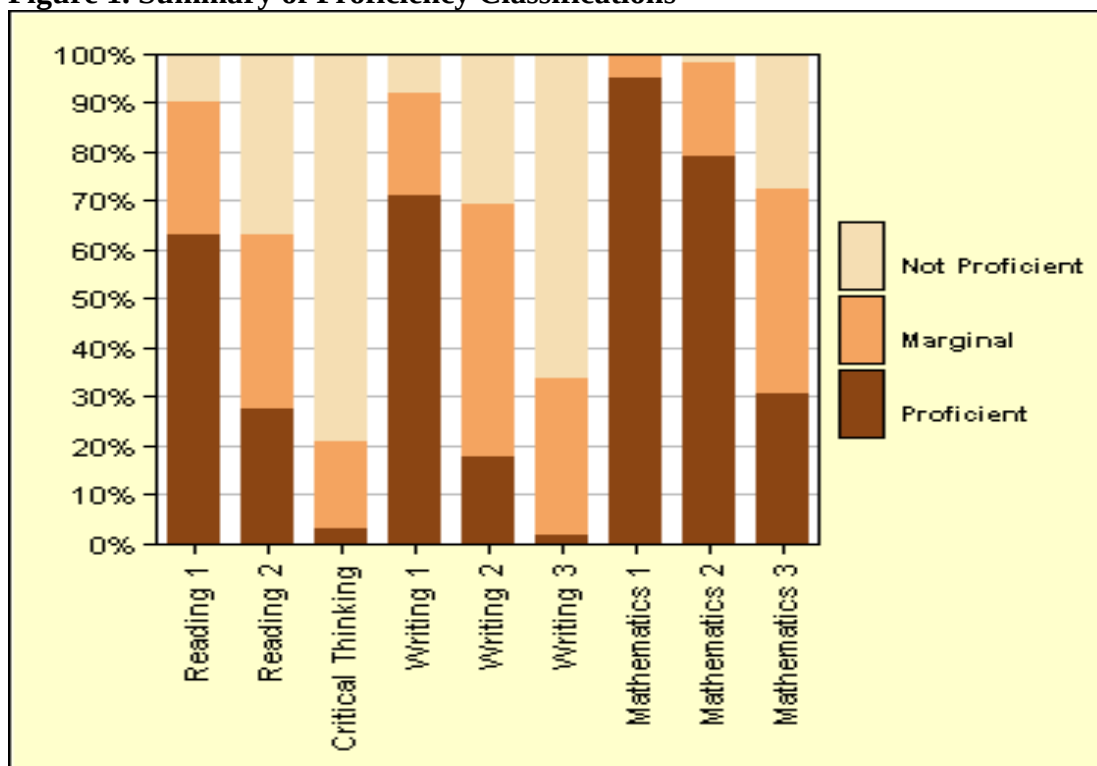
With respect to context-based subscores, AUB's highest performance was on humanities, followed by natural sciences then social sciences. AUB's performance on humanities was higher than mean reported by institutions but same as that reported by student population. AUB social sciences' performance was significantly lower than both samples. With respect to natural sciences the differences between AUB's score and that of the institutional sample was

insignificant but was significantly lower than the student norming sample. Comparing AUB performance to last years, AUB performed better in humanities with an increase in percentile rank from 52^{ile} to 86th percentile. The other two context-based scores, AUB performance remained same.

2. Categorical Criterion-referenced Proficiency Classifications

Figure 1 and Table 5 report AUB performance on various tests in terms of proficiency level attained. Definitions of various proficiency levels is provided in Appendix.

Figure 1. Summary of Proficiency Classifications



As evident from the figure and graph AUB's Proficient performance is lower than the norms in reading and writing and difference becomes larger with higher levels of the subjects. Percentage of AUB students decreases with higher levels of proficiency especially at higher levels of subjects. For example, 71% of AUB students are Proficient in Writing 1 similar to norms of 70%, however percentage goes down to 18% at Writing II vs 29% for norms and to 2% only at Writing 3 compared to 15%. With respect to math, AUB percentages on Proficient performance are much higher than norms. Highest percentage attaining P level is in math 1 (95%), followed by math 2 (79%), then writing 1 (71%) and reading 1 (63%). Only 3% of students are proficient in critical thinking, 2% in writing level 3, and 31% in math 3.

When comparing this year's results with 2018 (within brackets in Table), we can see higher percentages in 2019 achieving Proficient in levels 1 and 2 in the three subscore areas, and subsequently lower Not Proficient percentages.

Table 5. AUB Proficiency Levels Comparison with Norms

Skill Dimension	Proficiency Classification		
	Proficient	Marginal	Not Proficient
Reading, Level 1 (Norms 8,912)	63% (59) * (71%)	27% (23) (14%)	10% (18) (15%)
Reading, Level 2 (Norms)	27% (22) (46%)	35% (24) (19%)	37% (54) (35%)
Critical Thinking (Norms)	3% (3) (8%)	18% (14) (29%)	79% (83) (63%)
Writing, Level 1 (Norms)	71% (63) (70%)	21% (32) (21%)	8% (5) (9%)
Writing, Level 2 (Norms)	18% (12) (29%)	52% (50) (36%)	31% (38) (35%)
Writing, Level 3 (Norms)	2% (6) (15%)	32% (22) (30%)	66% (72) (55%)
Mathematics, Level 1 (Norms)	95% (92) (70%)	5% (3) (16%)	0% (5) (14%)
Mathematics, Level 2 (Norms)	79% (74) (51%)	19% (18) (19%)	2% (8) (30%)
Mathematics, Level 3 (Norms)	31% (32) (19%)	42% (37) (26%)	27% (31) (54%)

* 2018 results

3. Results by Faculty

Although the sample size is small, it will be useful to look at results by faculty. Table 6 reports means by faculty and Table 7 reports proficiency levels by subject and by faculty.

Looking at mean averages, FEA seems to have highest total scaled score followed by OSB and then FAS. FEA also leads on mathematics and other skill averages together with OSB and their averages on all areas are above AUB's average.

With respect to proficiency level (Table 7), the same conclusion is maintained. FEA and OSB have highest percentage of proficient (P) in Reading 1. FEA has highest in Reading II and Critical Thinking. With respect to Writing, FEA got highest percentage of Ps for W1, W2, and W3 followed by OSB. With respect to Math, FEA got highest percentages of P with OSB and FHS (level 1, 100%) and with OSB (levels 2 and 3). These results should be taken with caution as sample size is small.

Table 6. Means by Faculty

	N	Total	CT	R	W	Math	HU	SoSc	NaSc
AG	4	438.5	111.5	114.25	111	115	114.5	111	113
AS	33	449.9	111.5	117.4	114.5	120.6	116.8	111.4	114.2
EA	15	460.0	113.8	119.5	117.3	123.1	118.9	113.3	116.7
HS	2	439.5	107	114	113	117.5	113	109	109.5
SB	7	456.7	112.1	119.1	117.6	122.3	118.3	111.0	116.3
NU	1	446	108	121	114	116	113	114	115
AUB	62	452	111.9	117.8	115.2	120.9	117.2	111.7	114.8

Conclusion

This is the second year in which we use the ETS Proficiency Profile to measure attainment of general education outcomes for junior level students at AUB. Although we have selected a large and representative sample, yet only 62 sat for the test. Although it is a small sample, yet it did provide us with useful information on level of AUB junior students' proficiency in reading, critical thinking, writing and mathematics, and how they compare to junior students in doctorate/research universities in the US. In addition, results are reported by faculty though some of the sample sizes were very small.

Results this year were in general in higher than last year's and showed higher performance in overall average and in all skills subscores except math which stayed the same. With respect to context-based scores, AUB percentile improved in humanities only. Higher percentages this year achieved Proficient in levels 1 and 2 in the three subscore areas. When comparing results by faculty, similar to last year FEA and OSB had highest performance.

Due to the small sample size, we consider the study to be a pilot one providing us with an initial idea about various skills assessed in different contexts (humanities, social sciences, and natural sciences).

Participating students received a copy of their score report in addition to a table of norms so that they can compare their performance on every subject to the normative sample.

Table 7. Proficiency Levels by Faculty and Subject Area

		Reading						Critical Thinking			Writing									Mathematics								
		1			2			3			1			2			3			1			2			3		
FAC	N	P	M	N	P	M	N	P	M	N	P	M	N	P	M	N	P	M	N	P	M	N	P	M	N	P	M	N
AG	4	2	1	1	0	2	2	0	2	2	1	2	1	0	1	3	0	0	4	3	1	0	2	1	1	0	1	3
	%	50	25	25	0	50	50	0	50	50	25	50	25	0	25	75	0	0	100	75	25	0	50	25	25	0	25	75
AS	33	20	10	3	9	11	13	0	6	27	21	8	4	4	17	12	0	10	23	31	2	0	24	9	0	9	14	10
		61	30	9	27	33	39	0	18	82	64	24	12	12	52	36	0	30	70	94	6	0	73	27	0	27	42	30
EA	15	11	2	2	6	5	4	2	2	11	14	1	0	5	9	1	1	6	8	15	0	0	14	1	0	7	7	1
		73	13	13	40	33	27	13	13	73	93	7	0	33	60	7	7	40	53	100	0	0	93	7	0	47	47	7
HS	2	0	2	0	0	0	2	0	0	2	1	1	0	0	1	1	0	0	2	2	0	0	1	1	0	0	1	1
		0	100	0	0	0	100	0	0	100	50	50	0	0	50	50	0	0	100	100	0	0	50	50	0	0	50	50
SB	7	5	2	0	2	3	2	0	1	6	6	1	0	2	3	2	0	4	3	7	0	0	7	0	0	3	3	1
		71	29	0	29	43	29	0	14	86	86	14	0	29	43	29	0	57	43	100	0	0	100	0	0	43	43	14
NU	1	1	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	1	1	0	0	1	0	0	0	0	1
ALL	62	39	17	6	17	22	23	2	11	49	44	13	5	11	32	19	1	20	41	59	3	0	49	12	1	19	26	17
	%	63	27	10	27	35	37	3	18	79	71	21	8	18	52	31	2	32	66	95	5	0	79	19	2	31	42	27

Appendix Proficiency Classifications

Reading and Critical Thinking

To be considered **proficient at Level 1**, a student should be able to:

- recognize factual material explicitly presented in a reading passage
- understand the meaning of particular words or phrases in the context of a reading passage

To be considered **proficient at Level 2**, a student should be able to:

- synthesize material from different sections of a passage
- recognize valid inferences derived from material in the passage
- identify accurate summaries of a passage or of significant sections of the passage
- understand and interpret figurative language
- discern the main idea, purpose, or focus of a passage or a significant portion of the passage

To be considered **proficient at Level 3**, a student should be able to:

- evaluate competing casual explanations
- evaluate hypotheses for consistency with known facts
- determine the relevance of information for evaluating an argument or conclusion
- determine whether an artistic interpretation is supported by evidence contained in a work
- recognize the salient features or themes in a work of art
- evaluate the appropriateness of procedures for investigating a question of causation
- evaluate data for consistency with known facts, hypotheses or methods.

Writing

To be considered **proficient at Level 1**, a student should be able to:

- recognize agreement among basic grammatical elements (e.g., nouns, verbs, pronouns and conjunctions)
- recognize appropriate transition words
- recognize incorrect word choice
- order sentences in a paragraph
- order elements in an outline

To be considered **proficient at Level 2**, a student should be able to:

- incorporate new material into a passage
- recognize agreement among basic grammatical elements (e.g., nouns, verbs, pronouns and conjunctions) when these elements are complicated by intervening words or phrases
- combines simple clauses into single, more complex combinations
- recast existing sentences into new syntactic combinations.

To be considered **proficient at Level 3**, a student should be able to:

- discriminate between appropriate and inappropriate use of parallelism
- discriminate between appropriate and inappropriate use of idiomatic language
- recognize redundancy
- discriminate between correct and incorrect constructions
- recognize the most effective revision of a sentence

Mathematics

To be considered proficient at **Level 1**, a student should be able to:

- solve word problems that would most likely be solved by arithmetic and do not involve conversion of units or proportionality (These problems can be multi-step if the steps are repeated rather than embedded.)
- solve problems involving the informal properties of numbers and operations, often involving the Number Line, including positive and negative numbers, whole numbers and fractions (including conversions of common fractions to percent, such as converting $\frac{1}{4}$ to 25%)
- solve problems requiring a general understanding of square roots and the squares of numbers
- solve a simple equation or substitute numbers into an algebraic expression
- find information from a graph (This task may involve finding a specified piece of information in a graph that also contains other information.)

To be considered proficient at **Level 2**, a student should be able to:

- solve arithmetic problems with some complications, such as complex wording, maximizing or minimizing and embedded ratios (These problems include algebra problems that can be solved by arithmetic [the answer choices are numeric].)
- simplify algebraic expressions, perform basic translations and draw conclusions from algebraic equations and inequalities (These tasks are more complicated than solving a simple equation, though they may be approached arithmetically by substituting numbers.)
- interpret a trend represented in a graph, or choose a graph that reflects a trend
- Solve problems involving sets (The problems would have numeric answer choices.)

To be considered proficient at **Level 3**, a student should be able to:

- solve word problems that would be unlikely to be solved by arithmetic; the answer choices are either algebraic expressions or are numbers that do not lend themselves to back-solving
- solve problems involving difficult arithmetic concepts such as exponents and roots other than squares and square roots and percent of increase or decrease
- generalize about numbers, e.g., identify the values of (x) for which an expression increases as (x) increases
- solve problems requiring an understanding of the properties of integers, rational numbers, etc.
- interpret a graph in which the trends are to be expressed algebraically or in which one of the following is involved: exponents and roots other than squares and square roots percent of increase or decrease
- solve problems requiring insight or logical reasoning.