ETS® Proficiency Profile Report

Introduction

The ETS® Proficiency Profile (PP) was adopted this year at AUB in replacement to the CAAP exam as a measure of attainment of general education outcomes at the junior level. As CAAP exam was suspended by ACT this year, we had to search for a similar instrument that 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 78 students took the test broken down by faculty as follows:

Table 3. Sample Broken Down by Faculty

Faculty	Students Number
FAS	34
FAFS	4
FHS	7
FEA	22
OSB	10
SNU	1
Total	**78**

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 2018 PP administration in terms of institutions (21) and students (11,335).

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

	AUB (N=78)		Norms (N=21)		AUB Percentile	Norms (N=11,335)	AUB Percentile
	Mean	SD	Mean	SD	Institutions	Students	By Students
Total Score (400-500)	449.6	17.35	447.0	10.6	57	452.8	44
Skills Subscores: (Range 100-130)							
Critical Thinking	110.9	6.06	111.9	2.6	19	113.4	41
Reading	116.8	6.62	118.3	2.9	19	119.6	34
Writing	114.6	4.73	114.8	2.1	33	115.8	37
Mathematics	120.9	5.82	114.8	3.4	90	116.9	65
Context-Based Subscores: (Range 100-130)							
Humanities	115.3	6.24	114.7	2.4	52	116.2	40
Social Sciences	111.0	6.43	113.6	2.4	14	114.7	34
Natural Sciences	114.5	5.44	115.5	2.3	24	116.8	34

AUB's mean total scaled score of 449.6 is higher than that of the mean for the 21 institutions of 447.0 when institutional means are taken, but is lower when student means are considered which is 452.8. In any case, both differences are not statistically significant as AUB mean is not far from both.

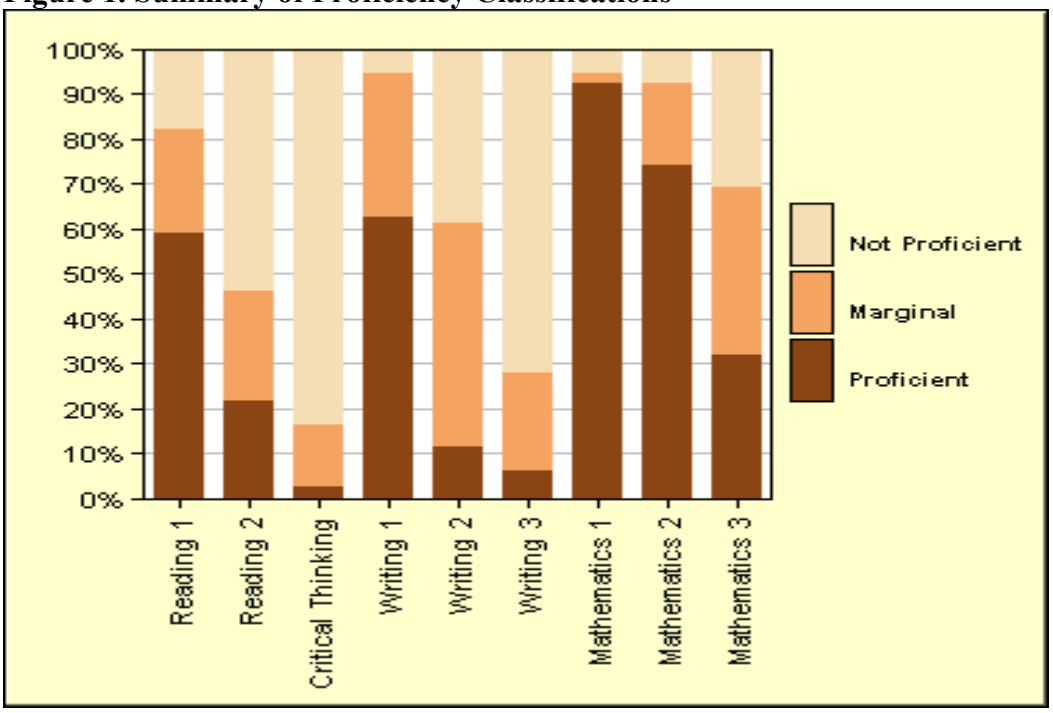
With respect to skills subscores, AUB's highest performance is on mathematics, followed by reading and writing, and the lowest is on critical thinking. On these skills, AUB performed significantly higher than norms in mathematics only, scored same on writing and critical thinking but was significantly lower on reading when taking institutional norms. When taking student population as norming sample, AUB score was significantly higher on math but significantly lower on the three other subjects.

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 the same as that of both norming samples, while in social sciences AUB's 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.

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. Highest percentage attaining P level is in math 1 (92%), followed by math 2 (74%), then writing 1 (63%) and reading 1(59%). Only 3% of students are proficient in critical thinking, 6% in writing level 3 and 32% in math 3.

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 FAS. FEA also leads on mathematics and other skill averages together with OSB. Differences are small and might be insignificant.

With respect to proficiency level, the same conclusion is maintained. OSB has highest percentage of proficient (P) in Reading 1 followed by FEA, also highest in Reading II followed by FAS. As for Critical Thinking, 5% of FEA and 3% of FAS got the P. With respect to Writing FEA got highest percentage of Ps for W1, W2, and W3 (with FAS). With respect to Math, FEA got highest percentages of P with OSB (level 1) and with FAS (levels 2 and 3). These results should be taken with caution as sample size s small.

Table 5. AUB Proficiency Levels Comparison with Norms

Skill Dimension	Proficiency Classification

	Proficient	Marginal	Not Proficient
Reading, Level 1 (Norms 11,335)	59% (72)	23% (14)	18% (14)
Reading, Level 2 (Norms)	22% (47)	24% (19)	54% (34)
Critical Thinking (Norms)	3% (8)	14% (29)	83% (63)
Writing, Level 1 (Norms)	63% (70)	32% (21)	5% (9)
Writing, Level 2 (Norms)	12% (29)	50% (37)	38% (34)
Writing, Level 3 (Norms)	6% (15)	22% (30)	72% (55)
Mathematics, Level 1 (Norms)	92% (71)	3% (16)	5% (13)
Mathematics, Level 2 (Norms)	74% (52)	18% (19)	8% (29)
Mathematics, Level 3 (Norms)	32% (20)	37% (27)	31% (54)

Table 6. Means by Faculty

	N	Total	CT	R	W	Math	HU	SoSc	NaSc
FAS	34	449	110.8	116.9	113.9	120.5	115.7	110.8	114.5
FEA	22	455.9	111.7	117.4	116.7	124.5	114.9	112.0	115.8
OSB	10	451.0	111.8	117.2	116.0	119.4	116.7	111.3	115.0
FHS	7	436.1	108.4	114.3	111.4	114.3	114.4	108.3	111.4
FAFS	4	446	110.8	116.8	112.8	120.3	114.0	112.3	113.5
SNU	1	427	104	113	107	114	111	110	106
AUB	78	449.6	110.9	116.8	114.6	120.9	115.3	111.0	114.5

Table 7. Proficiency Levels by Faculty and Subject Area

Faculty	Reading						Critical Thinking			Writing									Mathematics								
	Level1			Level2			Level 3			Level1			Level2			Level 3			Level1			Level2			Level 3		
	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
FAS N	20	8	6	9	7	18	1	6	27	19	12	3	3	15	16	3	5	26	30	1	3	26	4	4	10	14	10
%	59	24	18	26	21	53	3	18	79	56	35	9	9	44	47	9	15	76	88	3	9	76	12	12	29	41	29
FAFS N	2	2	0	0	1	3	0	0	4	2	2	0	0	2	2	0	1	3	4	0	0	2	2	0	1	1	2
%	50	50	0	0	25	75	0	0	100	50	50	0	0	50	50	0	25	75	100	0	0	50	50	0	25	25	50
FEA N	14	4	4	5	7	10	1	3	18	18	4	0	5	13	4	2	7	13	22	0	0	22	0	0	12	9	1
%	64	18	18	23	32	45	5	14	82	82	18	0	23	59	18	9	32	59	100			100			55	41	5
FHS N	3	2	2	0	2	5	0	1	6	3	3	1	0	2	5	0	0	7	5	1	1	1	4	2	0	1	6
%	43	29	29		29	71		14	86	43	43	14		29	71			100	71	14	14	14	57	29		14	86
OSB N	7	1	2	3	2	5	0	1	9	7	3	0	1	7	2	0	4	6	10	0	0	7	3	0	2	4	4
%	70	10	20	30	20	50		10	90	70	30			70	20		40	60	100			70	30		20	40	40
SNU N		1				1			1		1				1			1	1				1				1
Total N	**46**	**18**	**14**	**17**	**19**	**42**	**2**	**11**	**65**	**49**	**25**	**4**	**9**	**39**	**30**	**5**	**17**	**56**	**72**	**2**	**4**	**58**	**14**	**6**	**25**	**29**	24
%	**59**	**23**	**18**	**22**	**24**	**54**	**2.5**	**14**	**83**	**63**	**32**	**5**	**12**	**50**	**38**	**6**	**22**	**72**	**92**	**2.5**	**5**	**74**	**18**	**8**	**32**	**37**	31

Conclusion

This is the first 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 78 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. Accordingly, 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. We hope to disseminate the results and raise awareness about the importance of seriously taking the ETS PP so that in the coming year we get a more representative sample.

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 ¼ to 25%)
- solve problems requiring a general understanding of square roots and the squares of numbers
- solve a simple equation or substitute numbers into a 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.