ETS Proficiency Profile – 2021 Texas Tech University Report

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INTRODUCTION

The ETS Proficiency Profile is a nationally normed assessment used by over 100 colleges and universities in the United States since 2016. The Proficiency Profile can be used in accreditation requirements and to measure student performance. The Office of Planning and Assessment (OPA) completed our most successful administration of the Proficiency Profile in spring 2021 with 97 valid test results. This report will discuss the assessment instrument, OPA's 2021 administration, Texas Tech University (TTU) results, comparisons between TTU data and 107 other institutions results from the past five years and concluding remarks and recommendations for the next administration in 2023.

ASSESSMENT INSTRUMENT

The Proficiency Profile assesses skills in reading, writing, critical thinking, and mathematics and evaluates context-based categories in humanities, social sciences, and natural sciences. TTU used the abbreviated, unproctored online test form for greatest accessibility for students. The abbreviated form consists of 36 questions, divided into nine questions for critical thinking, reading, writing, and mathematics, respectively. Students have 40 minutes to complete the assessment, although extra time can be provided for students needing academic accommodations. If students do not complete the assessment in 40 minutes, or if ETS detects another discrepancy during the test, then those results are not included in the final data. TTU had 100 completed tests, but only 97 valid results. While the assessment is online and unproctored, students must download a testing browser from the ETS website which disables the use of other windows while taking the test to discourage cheating or distractions. More information about the test content, design, and published research using the Proficiency Profile can be found at ets.org/proficiencyprofile/about/.

After students complete the assessment, ETS provides eight scaled scores including a total score, four skills subscores, and three context-based subscores. The maximum total score ranges from 400 to 500, and each subscore ranges from 100 to 130. Additionally, ETS provides three levels of proficiency classifications for reading/critical thinking, writing, and mathematics, with Level 1 being the most basic, Level 2 being more advanced, and Level 3 the most complex. More information on scores and proficiency classifications can be found at ets.org/proficiencyprofile/scores/.

2021 TTU ADMINISTRATION

The Office of Planning and Assessment administered the ETS Proficiency Profile to TTU seniors in April of 2021, resulting in 97 valid results. The assessment was conducted online, and students only need a computer and internet connection to download the required software and complete the test. OPA had 100 available tests and began inviting students to complete the assessment via email on April 1, 2021. Each student had 40 minutes to complete the assessment and could take the test at their convenience until April 30th, 2021. OPA offered two scholarships for $500 as incentives for students to complete the assessment. OPA distributed initial invites and reminders through the Lyris email platform to over 10,000 seniors each week of April, providing detailed instructions on how to start and complete the assessment. OPA also answered student questions and helped with academic accommodations.

OPA completed the administration of the ETS Proficiency Profile at the end of April 2021. Participants were entered into a drawing for a chance to win a $500 scholarship, awarded to two students. In 2021, all 100 available tests were completed by students, compared to the 2019 administration where 39 tests were completed. Two scholarship winners were selected, and both accepted the prize before the end of the 2021 spring semester.

2021 TTU RESULTS

Overall Scores

While 100 students completed the ETS Proficiency Profile, only 97 of those produced valid results. The mean score for the test was 449.15 (in a range of 400 to 500) with a standard deviation of 23.7 and confidence limits for the mean of 447 to 452. Table 1 shows the range, mean, confidence limits, standard deviation, and 3 major percentile brackets for the 97 seniors' total scores.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
400 to 500	449.51	447 to 452	23.7	431	447	469

Table 1

Skills Subscores

The Skills Subscores range from 100 to 130, and include Critical Thinking, Reading, Writing, and Mathematics. Chart 1 shows the mean for each skill subscore.
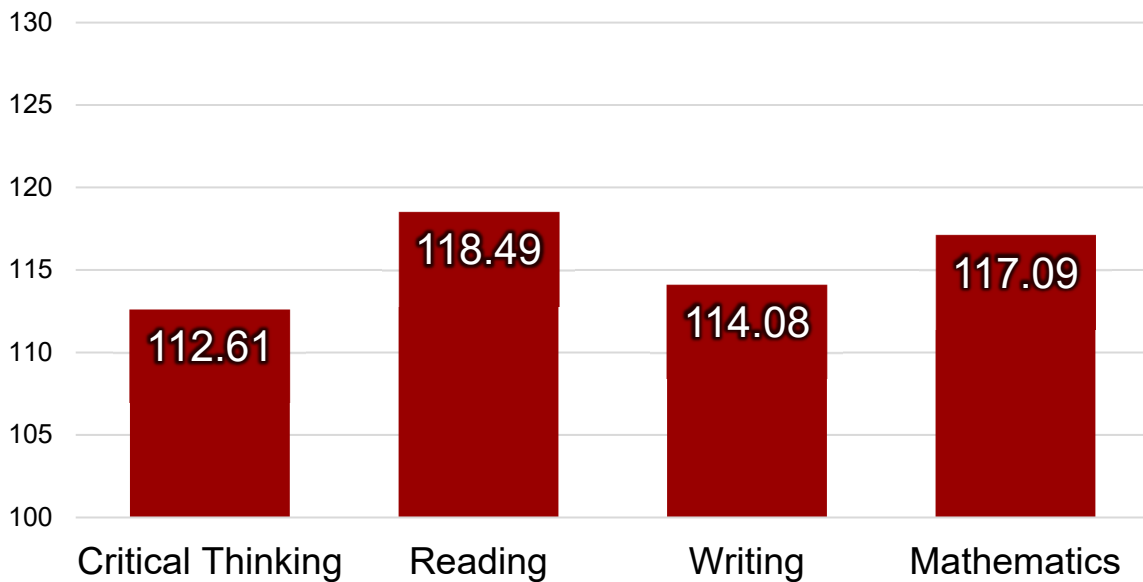

Means of Skills Subscores

Chart 1

Critical Thinking

The mean score for Critical Thinking was 112.61 with a standard deviation of 6.92 and confidence limits for the mean of 111 to 114. According to the ETS website, the Critical Thinking questions in the assessment measure students' ability to:

- 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

Table 2 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the scores in Critical Thinking.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	112.61	111 to 114	6.92	107	112	116

Table 2

Reading

The mean score for Reading was 118.49 with a standard deviation of 7.62 and confidence limits for the mean of 117 to 120. According to the ETS website, the Reading questions in the assessment measure students' ability to:

- Interpret the meaning of key terms
- Recognize the primary purpose of a passage
- Recognize explicitly presented information
- Make appropriate inferences
- Recognize rhetorical devices

Table 3 shows the range, mean, confidence limits, standard deviation, and 3 major percentile brackets for the scores in Reading.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	118.49	117 to 120	7.62	111	121	124

Table 3

Writing

The mean score for Writing was 114.08 with a standard deviation of 5.48 and confidence limits for the mean of 113 to 115. According to the ETS website, the Writing questions in the assessment measure students' ability to:

- 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

Table 4 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the 97 senior's scores in Writing.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	114.08	113 to 115	5.48	110	114	119

Table 4

Mathematics

The mean score for Mathematics was 117.09 with a standard deviation of 7.10 and confidence limits for the mean of 116 to 118. According to the ETS website, the Mathematics questions in the assessment measure students' ability to:

- Recognize and interpret mathematical terms
- Read and interpret tables and graphs
- Evaluate formulas
- Order and compare large and small numbers
- Interpret rations, proportions, and percentages
- Read scientific measuring instruments
- Recognize and use equivalent mathematical formulas or expressions

Table 5 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the 97 senior's scores in Mathematics.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	117.09	116 to 118	7.10	112	117	123

Table 5

Context-Based Subscores

The Context-Based Subscores range from 100 to 130 and include Humanities, Social Sciences and Natural Sciences. Chart 2 shows the mean for each context-based subscore.
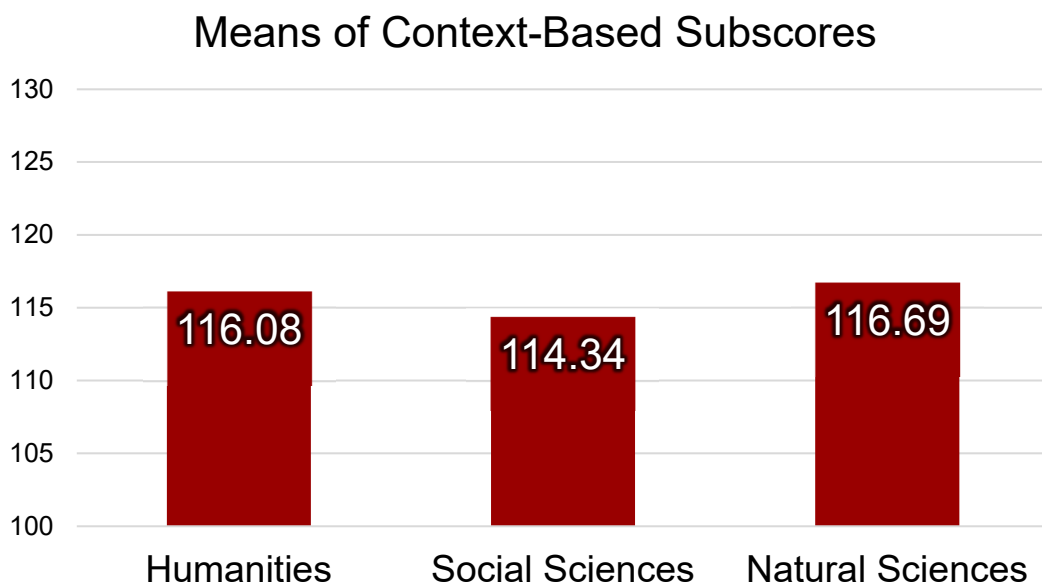

Means of Context-Based Subscores

Humanities: 116.08
Social Sciences: 114.34
Natural Sciences: 116.69

Chart 2

Humanities

The mean score for Humanities was 116.08 with a standard deviation of 6.87 and confidence limits for the mean of 115 to 118. The Context-Based sections do not have assessment measures or Proficiency Classifications like the Skills sections because they are topical questions in the assessment that are evaluated

based on the skills scores associated with each topical question. Table 6 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the scores in Humanities.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	116.08	115 to 118	6.87	112	117	123

Table 6

Social Sciences

The mean score for Social Sciences was 114.34 with a standard deviation of 6.77 and confidence limits for the mean of 113 to 116. The Context-Based sections do not have assessment measures or Proficiency Classifications like the Skills sections because they are topical questions in the assessment that are evaluated based on the skills scores associated with each topical question. Table 7 (on the following page) shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the scores in Social Sciences.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	114.34	113 to 116	6.77	107	115	119

Table 7

Natural Sciences

The mean score for Natural Sciences was 116.69 with a standard deviation of 6.68 and confidence limits for the mean of 115 to 118. The Context-Based sections do not have assessment measures or Proficiency Classifications like the Skills sections because they are topical questions in the assessment that are evaluated based on the skills scores associated with each topical question. Table 8 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the scores in Natural Sciences.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	116.69	115 to 118	6.68	111	117	122

Table 8

TTU RESULTS COMPARED TO OTHER PEER INSTITUTIONS

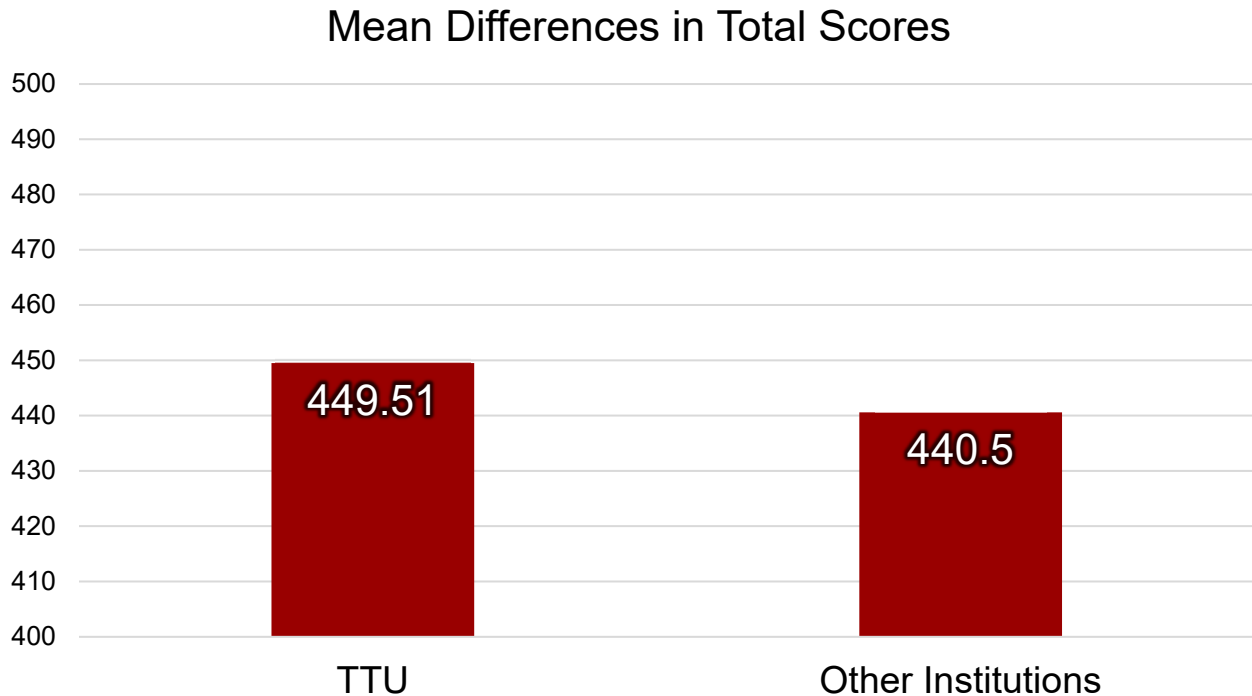## Total Scores

The following section compares TTU Total Scores from 2021 to other peer domestic institutions' scores over the past five years. This group includes 107 domestic R1 and R2 universities that used the unproctored delivery option and have results from 55,368 seniors. TTU's mean for Total Scores was 9.01 points higher than the mean of the other peer institutions. Chart 3 shows the differences between the Total Score means from TTU compared to the mean of the other peer institutions.

Mean Differences in Total Scores

TTU	Other Institutions
449.51	440.5

Chart 3

Skills Subscores

The following section compares TTU Skills Subscores from 2021 to other peer domestic institutions' scores over the past five years. This group includes 107 domestic R1 and R2 universities that used the unproctored delivery option and have results from 55,368 seniors. TTU's Skills Subscores means were 1.71 points higher for Critical Thinking, 1.79 points higher for Reading, 0.58 points higher for Writing, and 4.49 points higher in Mathematics than the corresponding means of the other peer institutions. Chart 4 (on the following page) shows the differences between the Skills Subscores means from TTU compared to the means of the other peer institutions.
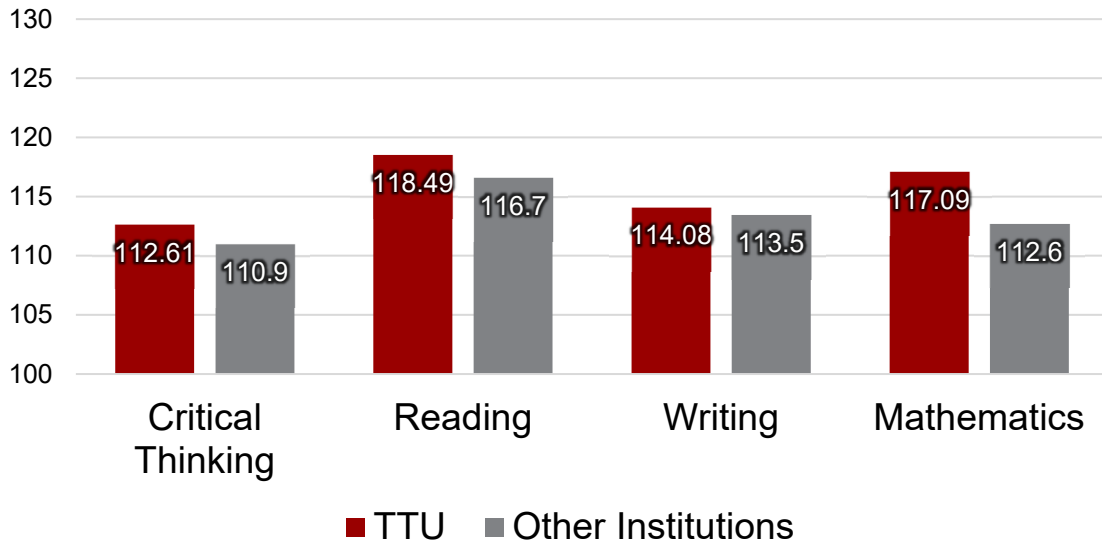
Mean Differences in Skills Subscores

Chart 4

Context-Based Subscores

The following section compares TTU Context-Based Subscores from 2021 to other peer domestic institutions' scores over the past five years. This group includes 107 domestic R1 and R2 universities that used the unproctored delivery option and have results from 55,368 seniors. TTU's Context-Based Subscores means were 0.98 points higher for Humanities, 1.34 points higher for Social Sciences, and 2.39 points higher for Natural Sciences, than the corresponding means for the other peer institutions. Chart 5 shows the differences between the Context-Based Subscores means from TTU compared to the means of the other peer institutions.

Mean Differences in Context-Based Subscores
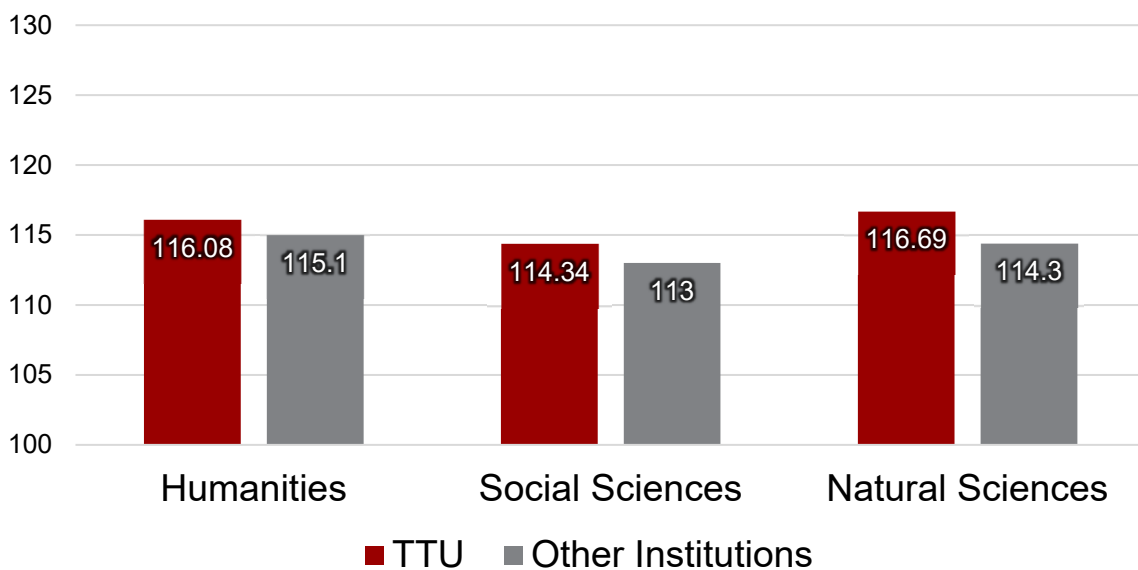
Chart 5

Critical Thinking

The assessment provides Proficiency Classifications for the four skills but separates Reading and Critical thinking. The Reading section contains Level 1 and Level 2 proficiency, but Level 3 is used for the Critical Thinking portion. According to the ETS Proficiency Profile User's Guide (page 9), to be considered proficient at Level 3/Critical Thinking, 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

TTU scored 3 percentage points higher in "Proficient" and 7 percentage points lower in "Not Proficient" for Critical Thinking than other peer institutions. Chart 6 shows the Proficiency Classification for Critical Thinking between TTU and other peer institutions.
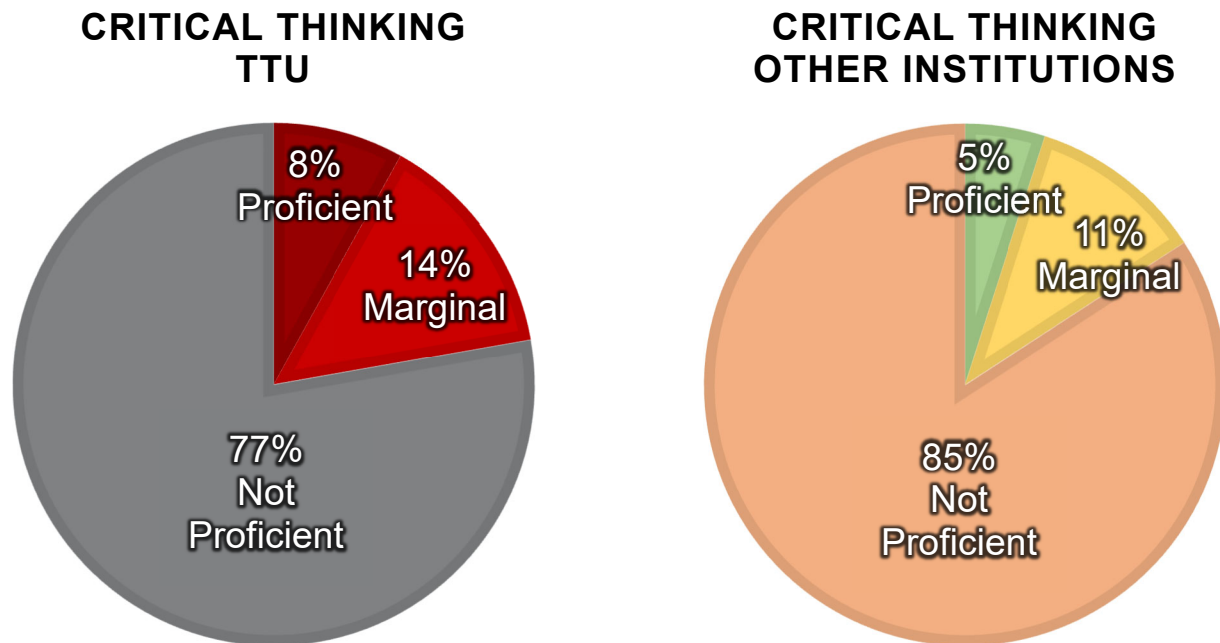

CRITICAL THINKING TTU

8% Proficient

14% Marginal

77% Not Proficient

CRITICAL THINKING OTHER INSTITUTIONS

5% Proficient

11% Marginal

85% Not Proficient

Chart 6

Critical Thinking is considered a Level 3 proficiency, which is the most complex in the assessment. More information on the Proficiency Classifications can be found in the ETS Proficiency Profile User's Guide.

Reading

The assessment provides Proficiency Classifications for the four skills but separates Reading and Critical thinking. The Reading section contains Level 1 and Level 2 proficiency, but Level 3 is used for the Critical Thinking portion. According to the ETS Proficiency Profile User's Guide, to be considered proficient at Level 1 in Reading, 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

TTU scored 7 percentage points higher in "Proficient" and 5 percentage points lower in "Not Proficient" for Reading, Level 1 than other peer institutions. Chart 7 (on the following page) shows Proficiency Classification for Reading, Level 1 between TTU and other peer institutions.

READING, LEVEL 1
TTU

26% Not Proficient

58% Proficient

16% Marginal

READING, LEVEL 1
OTHER INSTITUTIONS

31% Not Proficient
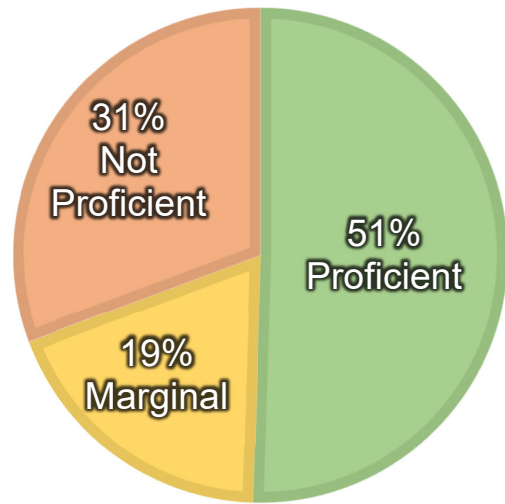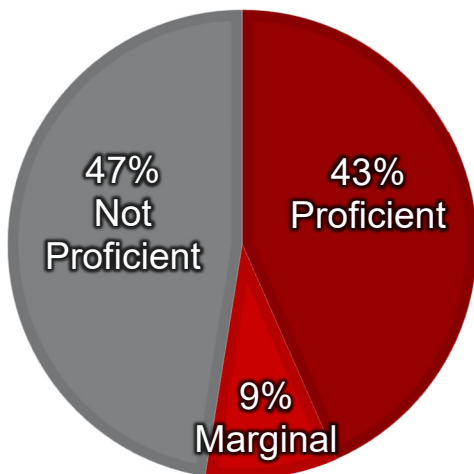
51% Proficient

19% Marginal
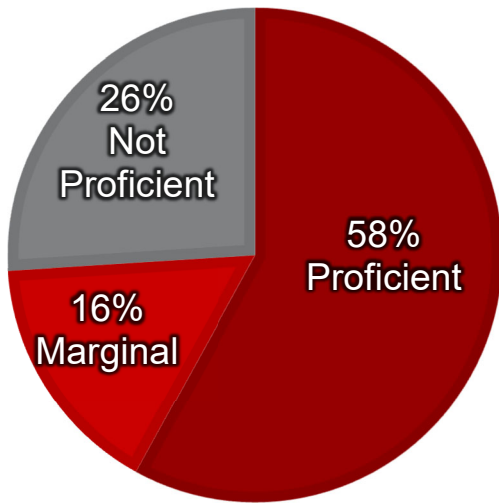
Chart 7

To be considered proficient at Level 2 in Reading, 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

TTU scored 16 percentage points higher in "Proficient" level and 10 percentage points lower in "Not Proficient" for Reading, Level 2 than other peer institutions. Chart 8 shows Proficiency Classification for Reading, Level 2 between TTU and other peer institutions.

READING, LEVEL 2
TTU

47% Not Proficient

43% Proficient

9% Marginal

READING, LEVEL 2
OTHER INSTITUTIONS

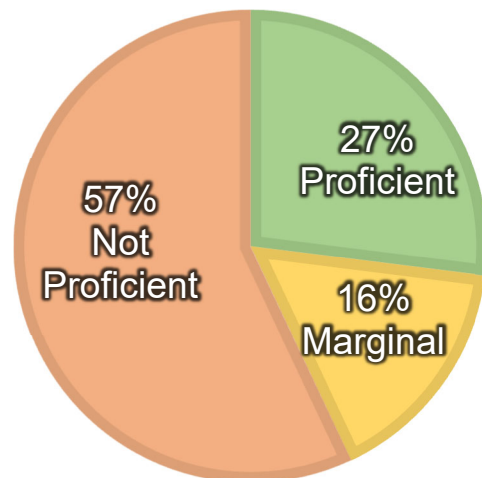57% Not Proficient

27% Proficient

16% Marginal

Chart 8

Writing

The assessment provides Proficiency Classifications for the four skills, including Writing. According to the ETS Proficiency Profile User's Guide (page 10), to be considered proficient at Level 1 in Writing, 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

TTU scored 4 percentage points lower in "Proficient" level and 1 percentage point higher in "Not Proficient" for Writing, Level 1 than other peer institutions. Chart 9 shows Proficiency Classification for Writing, Level 1 between TTU and other peer institutions.
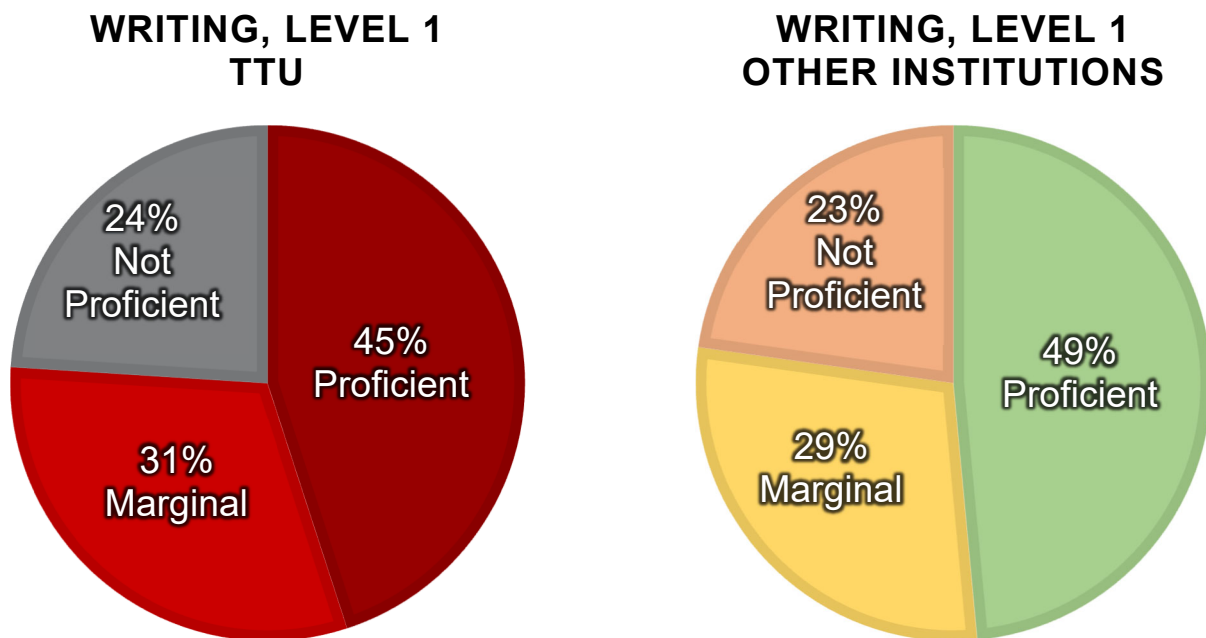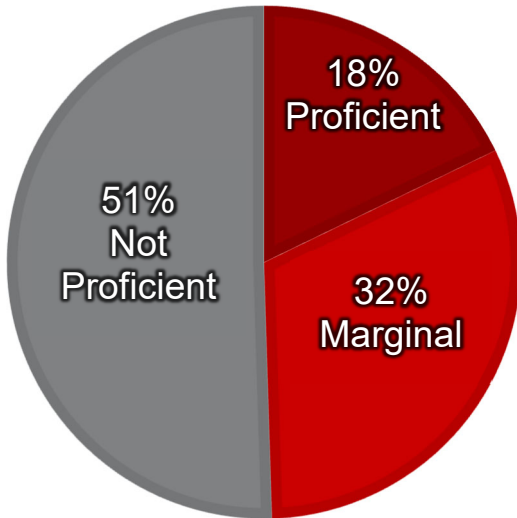
**WRITING, LEVEL 1
TTU**

24% Not Proficient

45% Proficient

31% Marginal

**WRITING, LEVEL 1
OTHER INSTITUTIONS**

23% Not Proficient

49% Proficient

29% Marginal

Chart 9

To be considered proficient at Level 2 in Writing, 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.

TTU scored 2 percentage points higher in "Proficient" level and 4 percentage points lower in "Not Proficient" for Writing, Level 2 than other peer institutions. Chart 10 (on the following page) shows Proficiency Classification for Writing, Level 2 between TTU and other peer institutions.

WRITING, LEVEL 2
TTU

18% Proficient

51% Not Proficient

32% Marginal

WRITING, LEVEL 2
OTHER INSTITUTIONS

16% Proficient

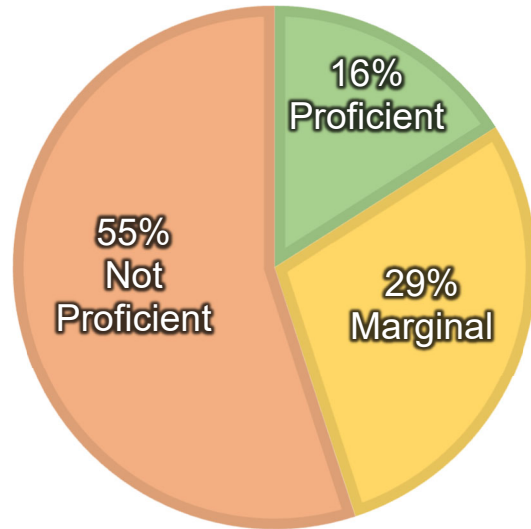55% Not Proficient

29% Marginal

Chart 10

To be considered proficient at Level 3 in Writing, 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

TTU scored 0 percentage points higher in "Proficient" level and 10 percentage points lower in "Not Proficient" for Writing, Level 3 than other peer institutions. Chart 11 shows Proficiency Classification for Writing, Level 3 between TTU and other peer institutions.

WRITING, LEVEL 3
TTU

5% Proficient

65% Not Proficient

30% Marginal
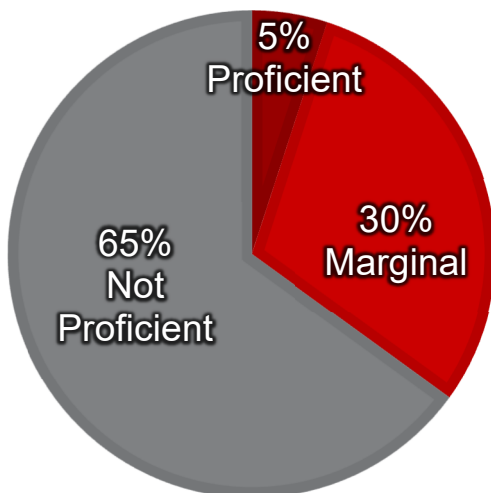
WRITING, LEVEL 3
OTHER INSTITUTIONS

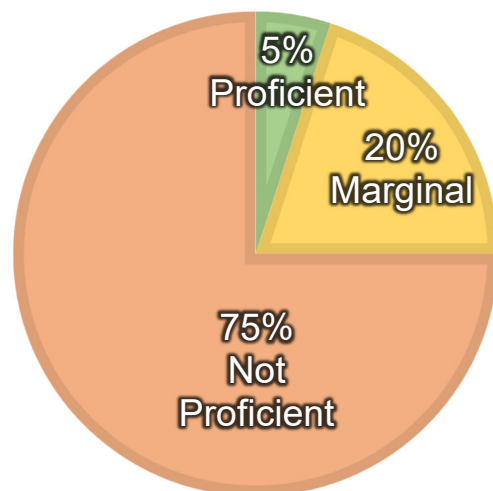5% Proficient

20% Marginal

75% Not Proficient

Chart 11

Mathematics

The assessment provides Proficiency Classifications for the four skills, including Mathematics. According to the [ETS Proficiency Profile User's Guide](#) (page 10-11), to be considered proficient at Level 1 in Mathematics, 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 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.)

TTU scored 22 percentage points higher in "Proficient" level and 18 percentage points lower in "Not Proficient" for Mathematics, Level 1 than other peer institutions. Chart 12 shows Proficiency Classification for Mathematics, Level 1 between TTU and other peer institutions.
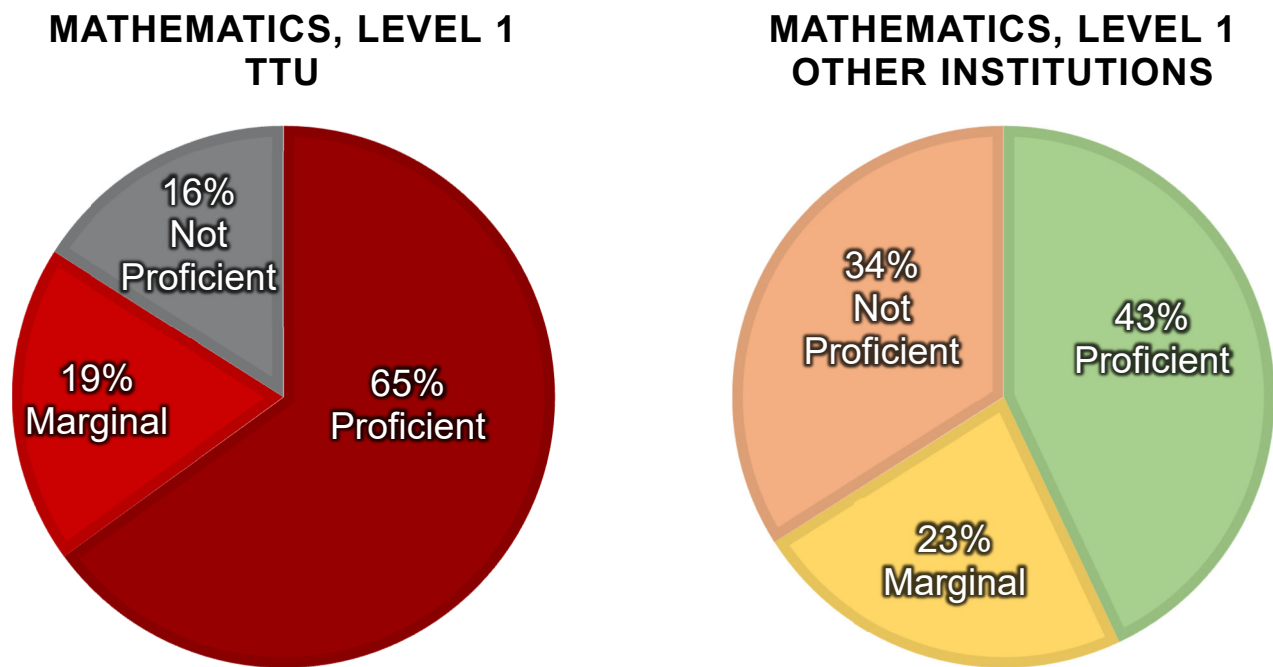
MATHEMATICS, LEVEL 1 TTU

MATHEMATICS, LEVEL 1 OTHER INSTITUTIONS

16% Not Proficient
19% Marginal
65% Proficient

34% Not Proficient
43% Proficient
23% Marginal

Chart 12

To be considered proficient at Level 2 in Mathematics, 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.)

TTU scored 25 percentage points higher in "Proficient" level and 22 percentage points lower in "Not Proficient" for Mathematics, Level 2 than other peer institutions. Chart 13 shows Proficiency Classification for Mathematics Level, 2 between TTU and other peer institutions.

MATHEMATICS, LEVEL 2
TTU
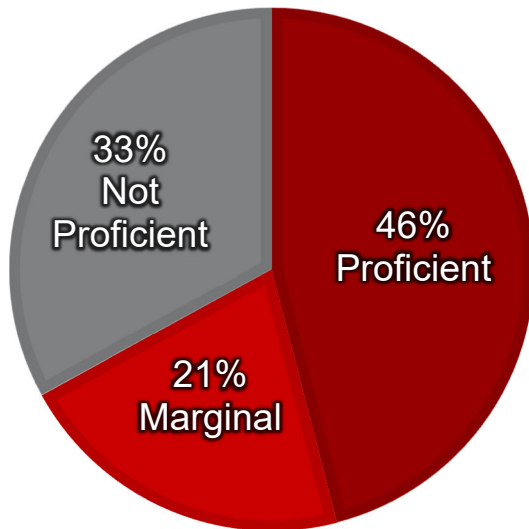
MATHEMATICS, LEVEL 2
OTHER INSTITUTIONS

33%
Not
Proficient

46%
Proficient

21%
Marginal

21%
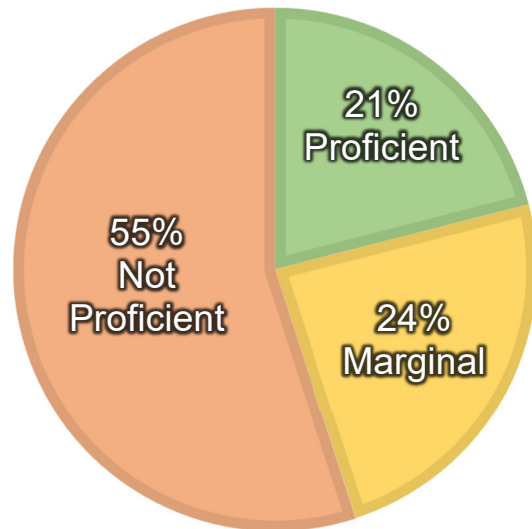Proficient

55%
Not
Proficient

24%
Marginal

Chart 13

To be considered proficient at Level 3 in Mathematics, 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.

TTU scored 9 percentage points higher in "Proficient" level and 27 percentage points lower in "Not Proficient" for Mathematics, Level 3 than other peer institutions. Chart 14 (on the following page) shows Proficiency Classification for Mathematics, Level 3 between TTU and other peer institutions.

MATHEMATICS, LEVEL 3
TTU

15% Proficient

30% Marginal

55% Not Proficient
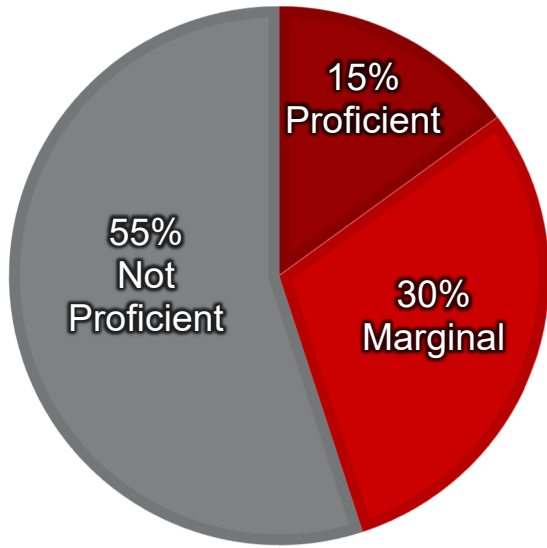
MATHEMATICS, LEVEL 3
OTHER INSTITUTIONS

6% Proficient

13% Marginal
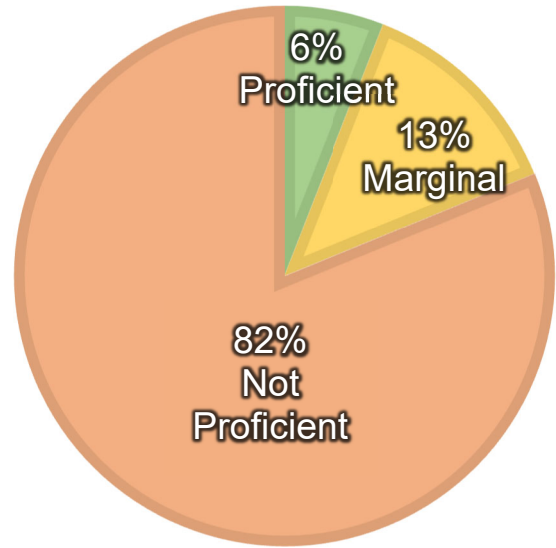
82% Not Proficient

Chart 14

CONCLUSION

Texas Tech University's mean scores outperformed the 107 other peer institution mean scores, ranging from 0.58 to 4.49 points higher in all Skills and Context-Based categories and 9.01 points higher in Total Score. Texas Tech also had better Proficiency Classifications in every level except for Writing, Level 1 and 3. The Office of Planning and Assessment will continue to administer the ETS Proficiency Profile and compare results with previous TTU administrations and the administrations of other peer universities. Because this is the first true assessment after our pilot testing of the Proficiency Profile, we expect more data that will continue to better illuminate students' skills before graduating and how they compare to other students around the country.