ETS Proficiency Profile – 2022 Texas Tech University Report

ETS Proficiency Profile – Texas Tech University Report, 2022

EXECUTIVE SUMMARY

During this administration of the Proficiency Profile, Texas Tech first-year students had a mean total score of 453.51 with a standard deviation of 22.3 and confidence limits for the mean of 451 to 456. This total score was then broken down into four skill subscores for critical thinking, reading, writing, and mathematics. First-year students tested demonstrated a mean skill subscore of 113.99 (SD=6.77) in critical thinking, 118.64 (SD=8.01) in reading, 115.39 (SD=4.72) in writing, and 118.14 (SD=6.71) in mathematics. The Proficiency Profile was also broken down into three context-based scores in the area of humanities, social sciences, and natural sciences. First-year students at Texas Tech had mean context-based subscore of 116.95 (SD=7.23) in humanities, 114.87 (SD=7.57) in social sciences, and 117.39 (SD=6.22) in natural sciences.

This data can be compared nationally to other universities who also administer the Proficiency Profile. For this administration, there were 48 other higher education institutions with a total of 16,532 students data reported. When comparing Texas Tech data to other institutions across the nation who also participated in Proficiency Profile administration, Texas Tech measured higher across all skill and context-based subscores. The total average for other institutions is 432.9 with a standard deviation of 8.9. In critical thinking, reading, writing, and mathematics other universities had means of 109, 114.1, 111.7, and 111, respectively. Other universities had mean context-based subscores of 113 in humanities, 111 in social sciences, and 112.6 in natural sciences.
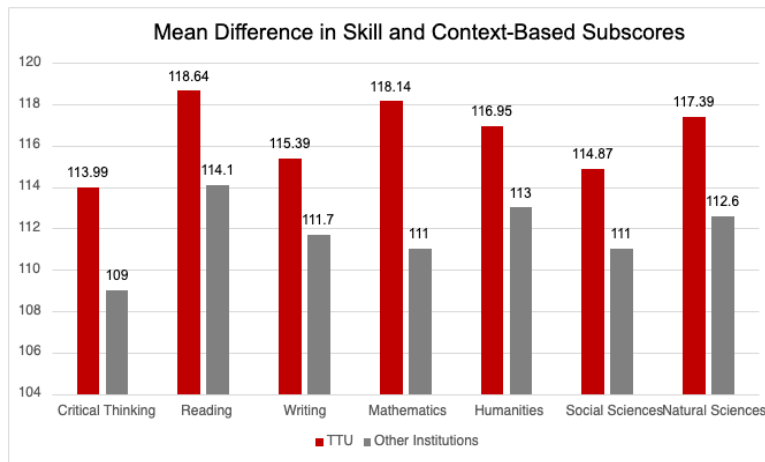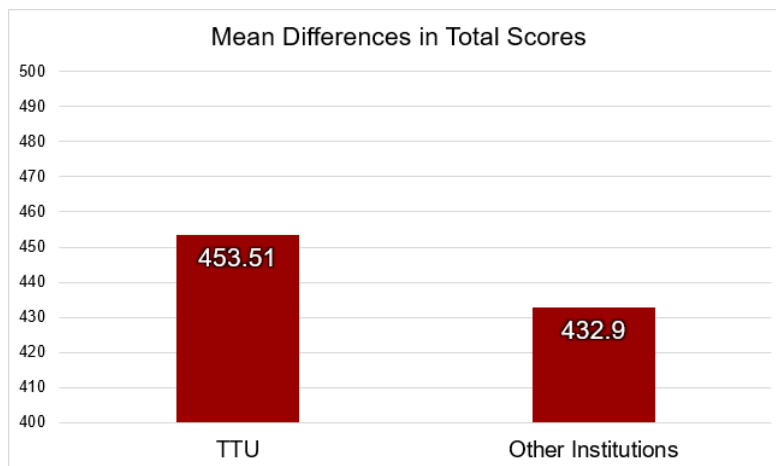

Chart i

Chart ii

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 a successful administration of the Proficiency Profile in fall 2022 with 87 valid test results. This report will discuss the assessment instrument, OPA's fall 2022 administration, Texas Tech University (TTU) results, comparisons between TTU data and 48 other institutions results from the past five years and concluding remarks and recommendations for the next administration in 2024-2025.

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 96 completed tests, but only 87 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 www.ets.org/proficiency-profile/about.html.

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 www.ets.org/proficiency-profile/scores-reports.html.

2022 TTU ADMINISTRATION

The Office of Planning and Assessment administered the ETS Proficiency Profile to TTU first-year students in October and November of 2022, resulting in 87 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 October 1, 2022. Each student had 40 minutes to complete the assessment and could take the test at their convenience until November 11, 2022. 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 6,855 first-year students each week of October and November, 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 mid-November 2022. Participants were entered into a drawing for a chance to win a $500 scholarship, awarded to two students. In 2022, 96 available tests were completed by students, compared to the 2021 administration where all 100 tests were completed. Two scholarship winners were selected, and both accepted the prize before the end of the 2022 fall semester.

2022 TTU RESULTS

Overall Scores

While 96 students completed the ETS Proficiency Profile, only 87 of those produced valid results. The mean score for the test was 453.51 (in a range of 400 to 500) with a standard deviation of 22.3 and confidence limits for the mean of 451 to 456. Table 1 shows the range, mean, confidence limits, standard deviation, and three major percentile brackets for the 87 first-year students' total scores.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
400 to 500	453.51	451 to 456	22.3	437	451	473

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.
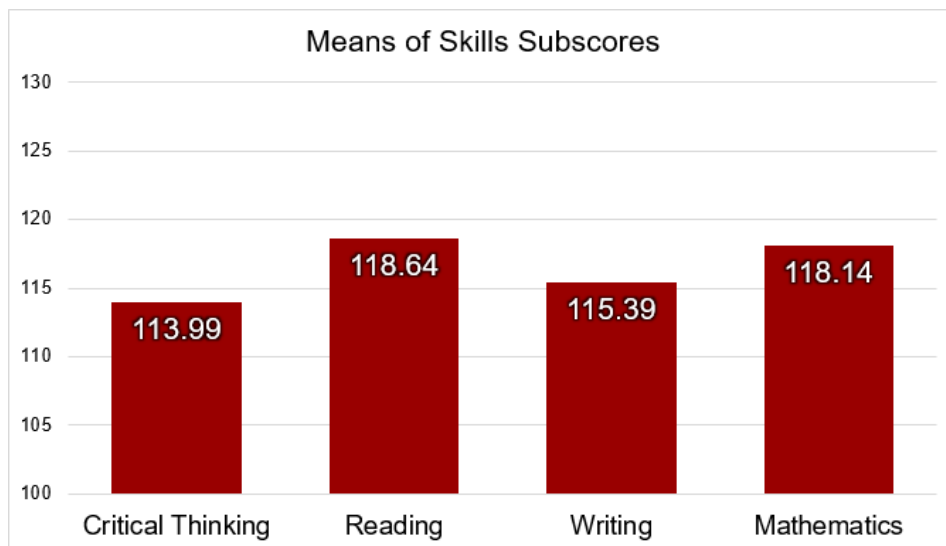

Chart 1

Critical Thinking

The mean score for Critical Thinking was 113.99 with a standard deviation of 6.77 and confidence limits for the mean of 113 to 115. 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	113.99	113 to 115	6.77	109	114	121

Table 2

Reading

The mean score for Reading was 118.64 with a standard deviation of 8.01 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 three major percentile brackets for the scores in Reading.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	118.64	117 to 120	8.01	111	120	126

Table 3

Writing

The mean score for Writing was 115.39 with a standard deviation of 4.72 and confidence limits for the mean of 114 to 117. 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 87 first-year students' scores in Writing.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	115.39	114 to 117	4.72	113	116	119

Table 4

Mathematics

The mean score for Mathematics was 118.14 with a standard deviation of 6.71 and confidence limits for the mean of 117 to 119. 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 ratios, 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 87 first-year students' scores in Mathematics.

Range	Mean	95% Confidence Limits	Standard Deviation	25th Percentile	50th Percentile	75th Percentile
100 to 130	118.14	117 to 119	6.71	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.
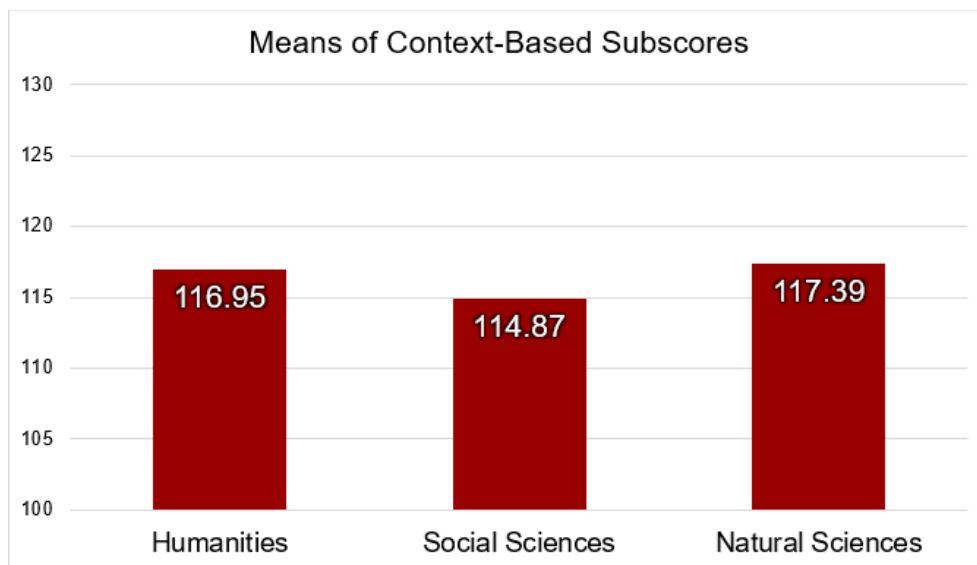

Chart 2

Humanities

The mean score for Humanities was 116.95 with a standard deviation of 7.23 and confidence limits for the mean of 115 to 119. 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	116.95	115 to 119	7.23	112	117	123

Table 6

Social Sciences

The mean score for Social Sciences was 114.87 with a standard deviation of 7.57 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 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	114.87	113 to 116	7.57	107	117	122

Table 7

Natural Sciences

The mean score for Natural Sciences was 117.39 with a standard deviation of 6.22 and confidence limits for the mean of 116 to 119. 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	117.39	116 to 119	6.22	113	119	122

Table 8

TTU RESULTS COMPARED TO OTHER PEER INSTITUTIONS

Total Scores

The following section compares TTU Total Scores from fall 2022 to other peer domestic institutions' scores over the past five years. This group includes 48 domestic R1 and R2 universities that used the unproctored delivery option and have results from 16,532 first-year students. TTU's mean for Total Scores was 20.61 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 other peer institutions.
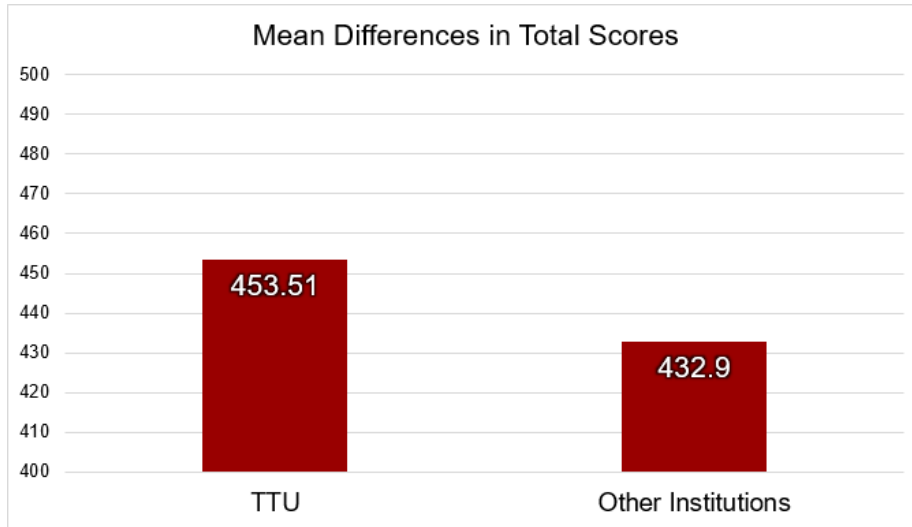
Chart 3

Skills Subscores

The following section compares TTU Skills Subscores from fall 2022 to other peer domestic institutions' scores over the past five years. This group includes 48 domestic R1 and R2 universities that used the unproctored delivery option and have results from 16,532 first-year students. TTU's Skills Subscores means were 4.99 points higher for Critical Thinking, 4.54 points higher for Reading, 3.69 points higher for Writing, and 7.14 points higher in Mathematics than the corresponding means of the other peer institutions. Chart 4 shows the differences between the Skills Subscores means from TTU compared to the means of the other peer institutions.
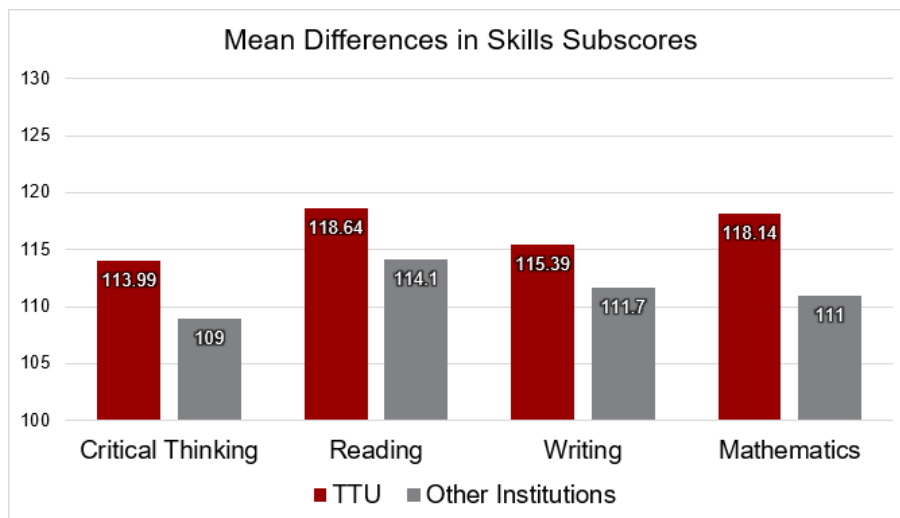

Chart 4

Context-Based Subscores

The following section compares TTU Context-Based Subscores from fall 2022 to other peer domestic institutions' scores over the past five years. This group includes 48 domestic R1 and R2 universities that used the unproctored delivery option and have results from 16,532 first-year students. TTU's Context-Based Subscores means were 3.95 points higher for Humanities, 3.87 points higher for Social Sciences, and 4.79 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.
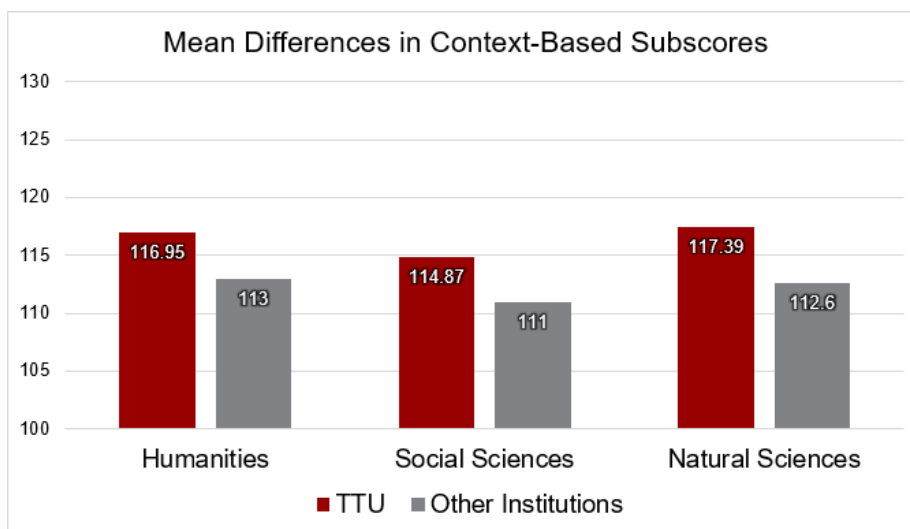

Chart 5

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 8 percentage points higher in "Proficient" and 22 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.
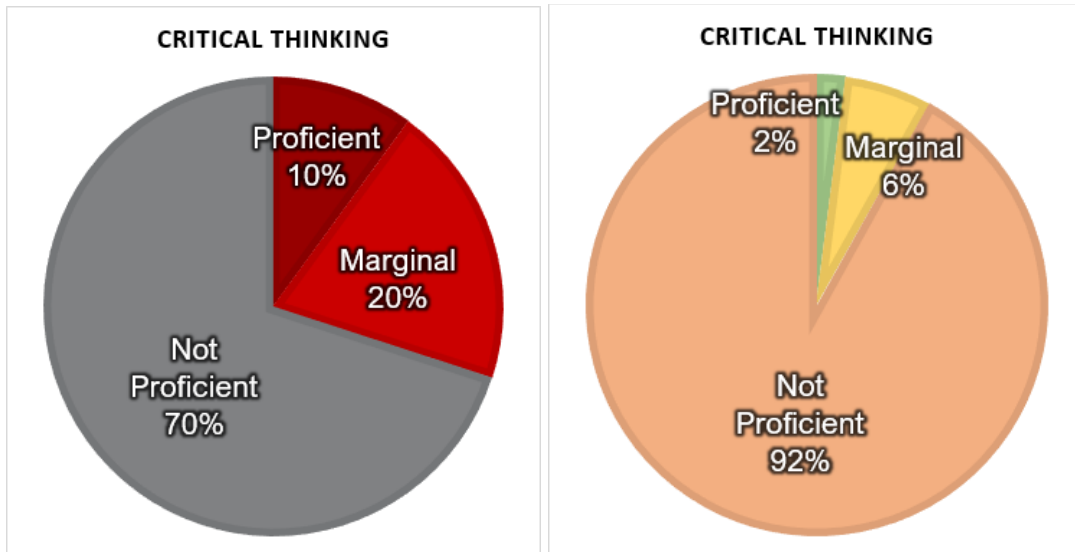
Chart 6

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 25 percentage points higher in "Proficient" and 16 percentage points lower in "Not Proficient" for Reading, Level 1 than other peer institutions. Chart 7 shows Proficiency Classification for Reading, Level 1 between TTU and other peer institutions.
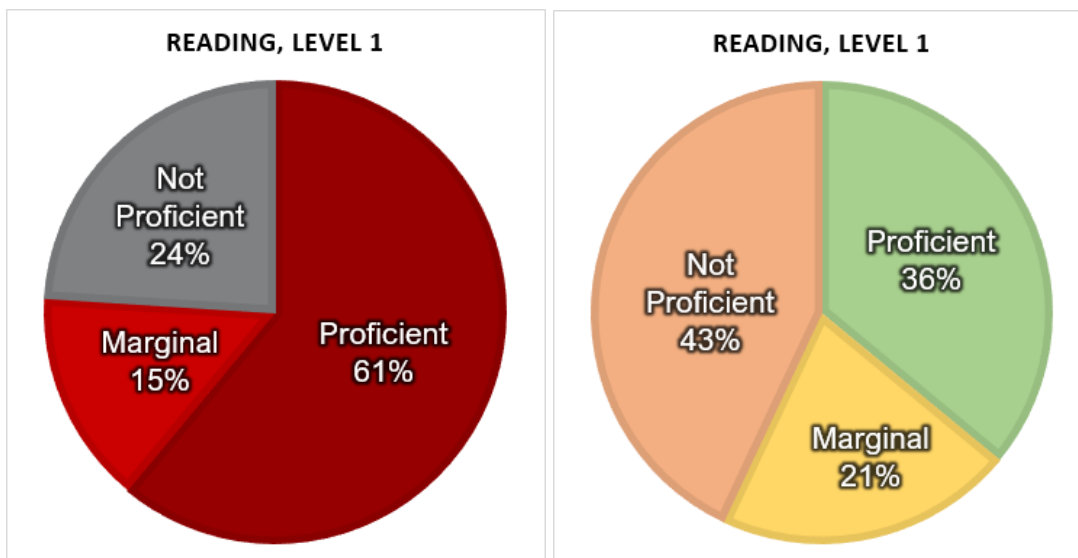

Chart 7

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 18 percentage points higher in "Proficient" level and 21 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.
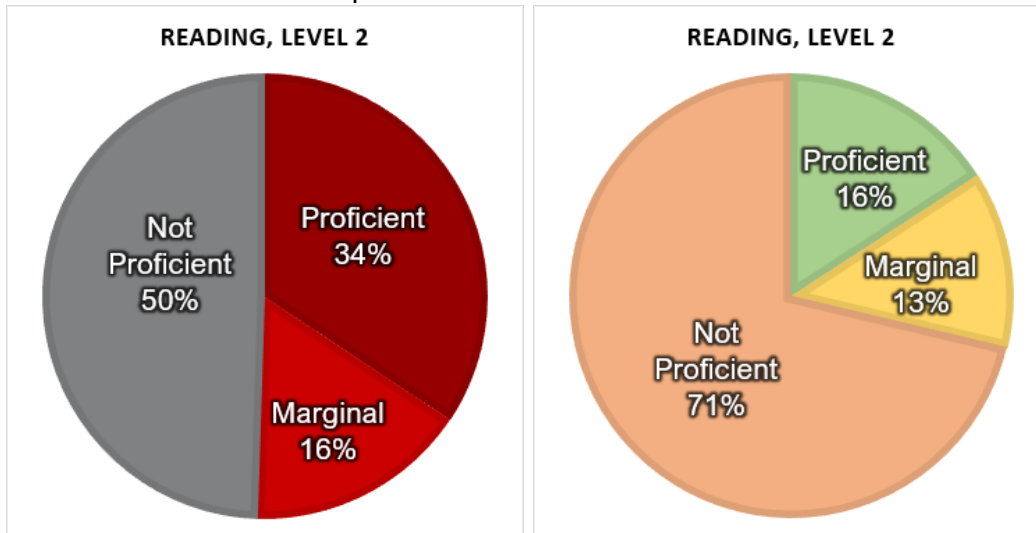

Chart 8

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 24 percentage points higher in "Proficient" level and 24 percentage points lower 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.
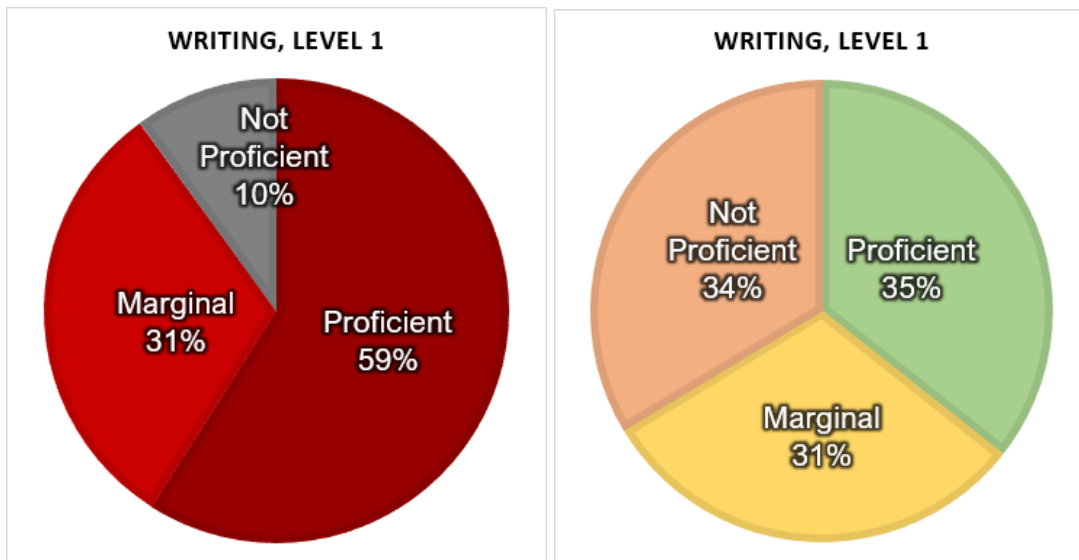
Chart 9

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
- Combine simple clauses into single, more complex combinations
- Recast existing sentences into new syntactic combinations.

TTU scored 13 percentage points higher in "Proficient" level and 25 percentage points lower in "Not Proficient" for Writing, Level 2 than other peer institutions. Chart 10 shows Proficiency Classification for Writing, Level 2 between TTU and other peer institutions.
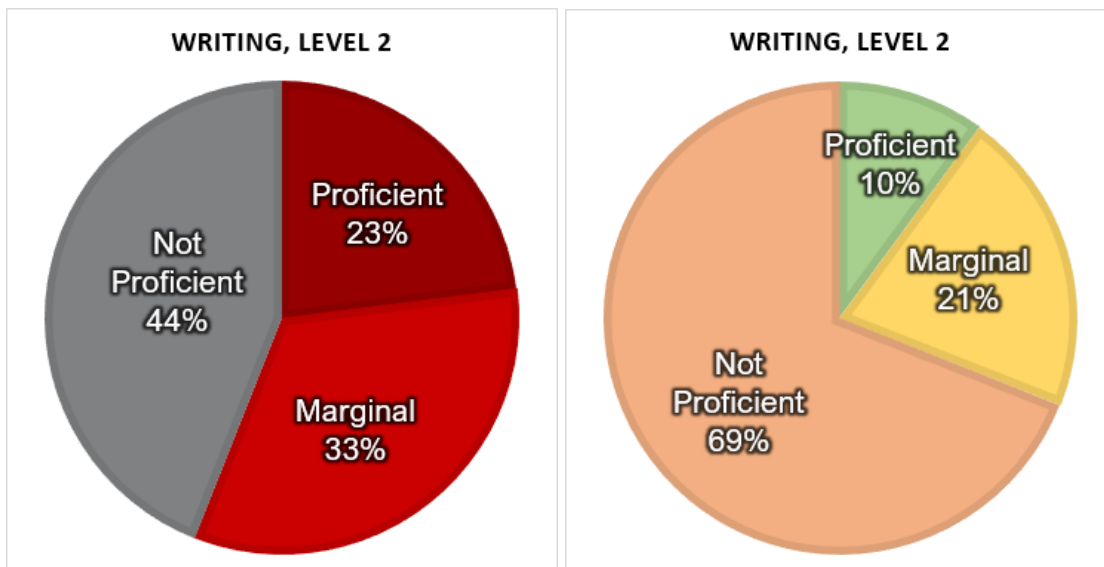

Chart 10

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 5 percentage points higher in "Proficient" level and 22 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.
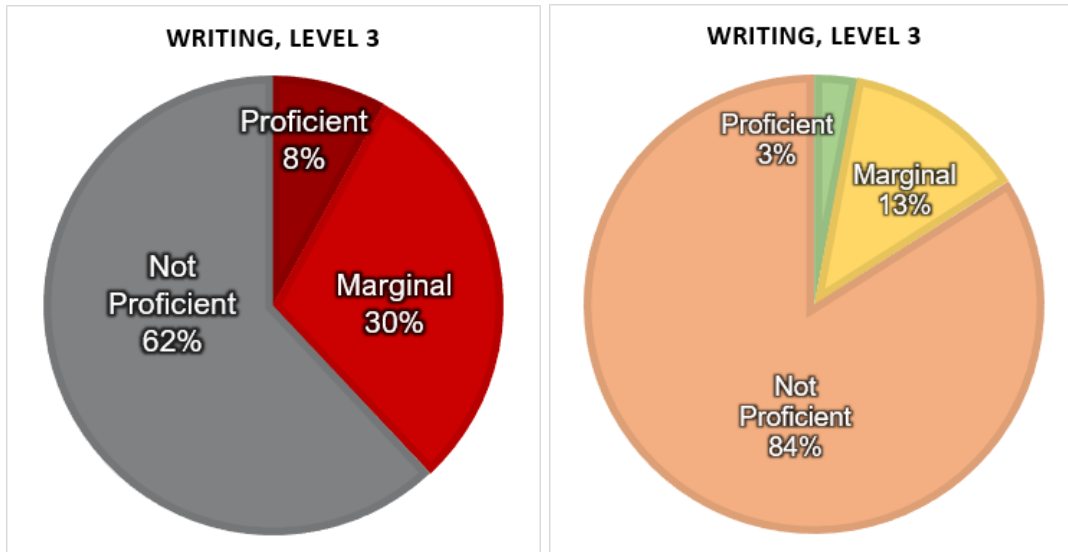

Chart 11

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 40 percentage points higher in "Proficient" level and 30 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.
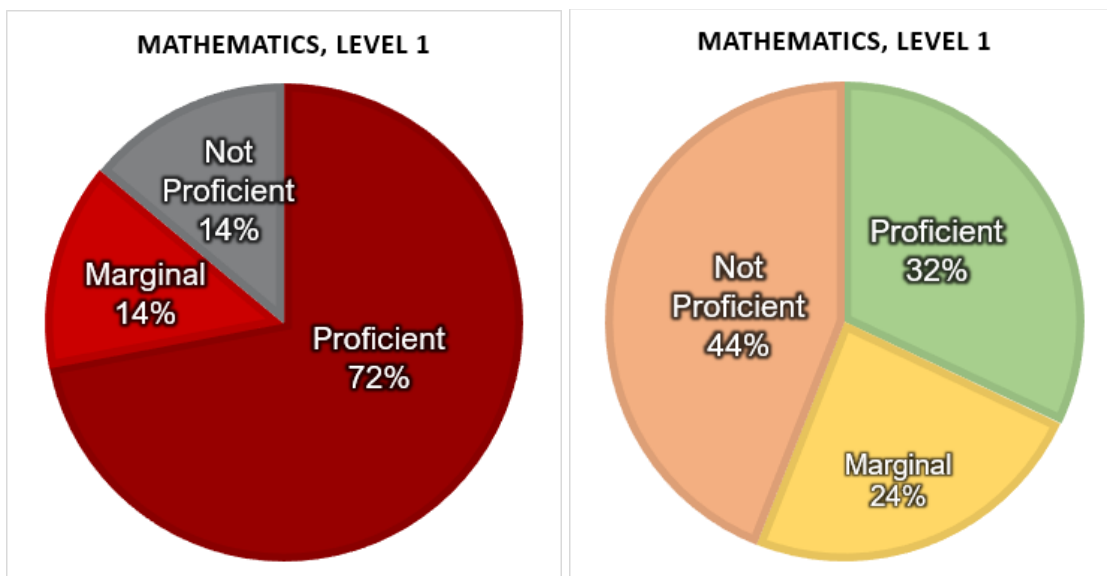
MATHEMATICS, LEVEL 1

Not Proficient 14%
Marginal 14%
Proficient 72%

MATHEMATICS, LEVEL 1

Proficient 32%
Not Proficient 44%
Marginal 24%

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 38 percentage points higher in "Proficient" level and 42 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.
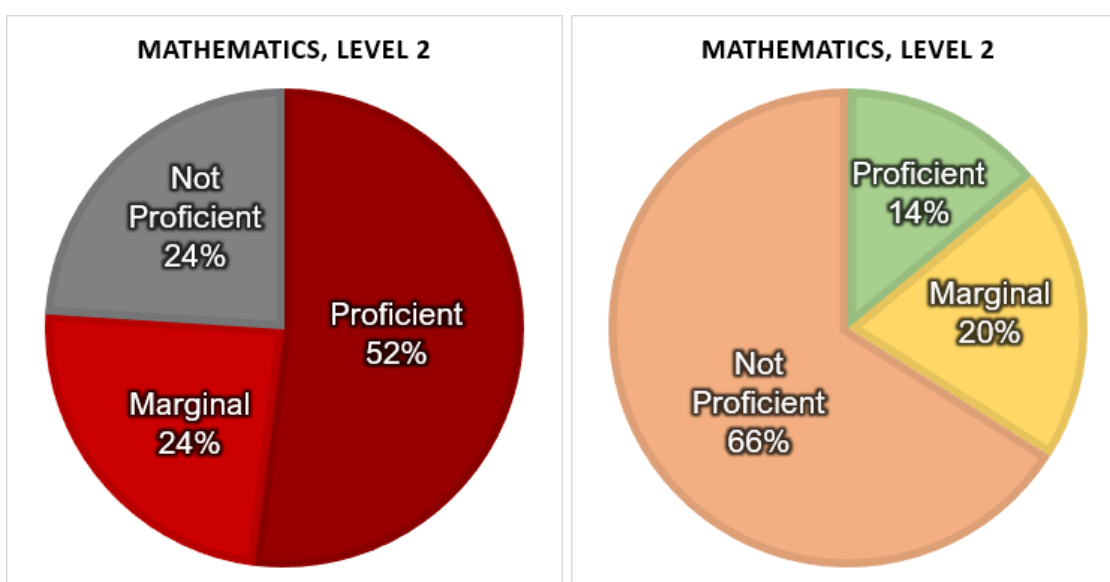

MATHEMATICS, LEVEL 2

Not Proficient 24%
Proficient 52%
Marginal 24%

MATHEMATICS, LEVEL 2

Proficient 14%
Marginal 20%
Not Proficient 66%

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 17 percentage points higher in "Proficient" level and 39 percentage points lower in "Not Proficient" for Mathematics, Level 3 than other peer institutions. Chart 14 shows Proficiency Classification for Mathematics, Level 3 between TTU and other peer institutions.
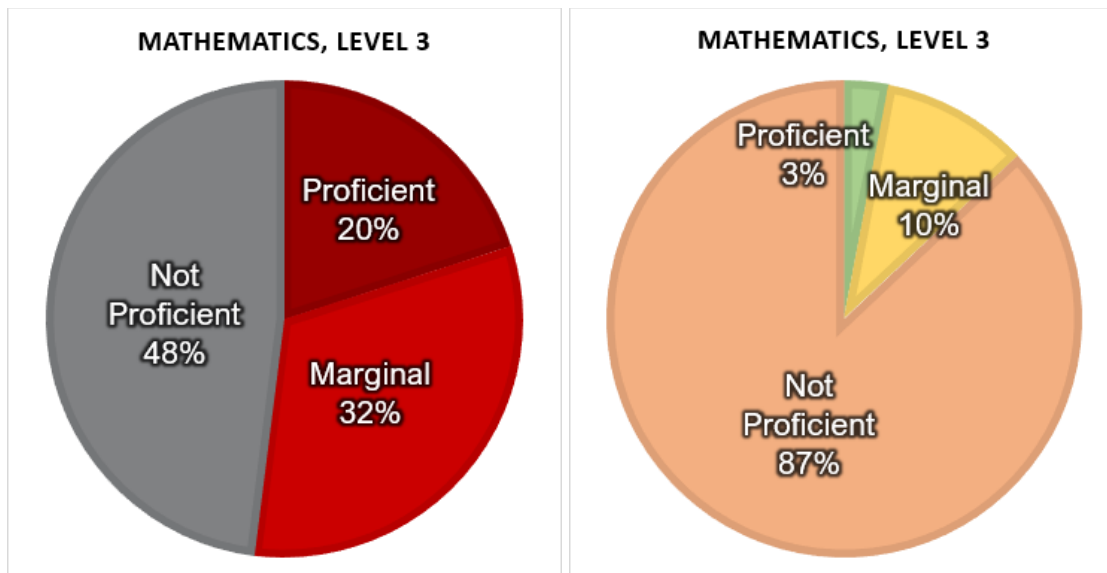

Chart 14

CONCLUSION

Texas Tech University's mean scores outperformed the 48 other peer institution mean scores, ranging from 3.69 to 7.14 points higher in all Skills and Context-Based categories and 20.61 points higher in Total Score. Texas Tech also had better Proficiency Classifications in every level compared to other institutions. 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 one of the first true assessments 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.