



TEXAS TECH UNIVERSITY

Office of the Provost

Office of Planning & Assessment[™]

TechQuest – 2021-2022

Texas Tech University Report

Introduction

TechQuest is a locally developed instrument created by the Office of the Provost, Core Curriculum Steering Committee, and the Office of Planning and Assessment (OPA) at Texas Tech University (TTU). TechQuest is designed to measure student learning in Foundational Component Areas (FCA) and general Student Learning Outcome objectives between a student's first year in college and upon graduation as a senior. The FCAs under the current Texas Core Curriculum are Communication; Mathematics; Life and Physical Sciences; Language, Philosophy, and Culture; Creative Arts; American History; Government/Political Sciences; Social and Behavioral Sciences. OPA has also identified six student learning outcomes to assess, which are as follows:

- *Texas Tech will prepare/prepared me to be a good problem solver.*
- *Texas Tech will prepare/prepared me to be a better communicator, specifically as it relates to my major.*
- *Texas Tech will prepare/prepared me to have the quantitative skills needed for after graduation.*
- *Texas Tech will prepare/prepared me to work in teams, specifically as it relates to my major.*
- *Texas Tech will prepare/prepared me to have a greater sense of social responsibility.*
- *Texas Tech will prepare/prepared me to have a greater sense of personal responsibility.*

In addition to demographic questions, there are 5 questions in each of the 8 Foundational Component Areas. Of those questions, one addresses a student's perceived competency in that area and the remaining four questions are knowledge-based. Additionally, first-year students will answer based on their expectations of learning upon graduation whereas senior students will answer based on their perceptions of learning upon graduation.

Instrumentation and Administration

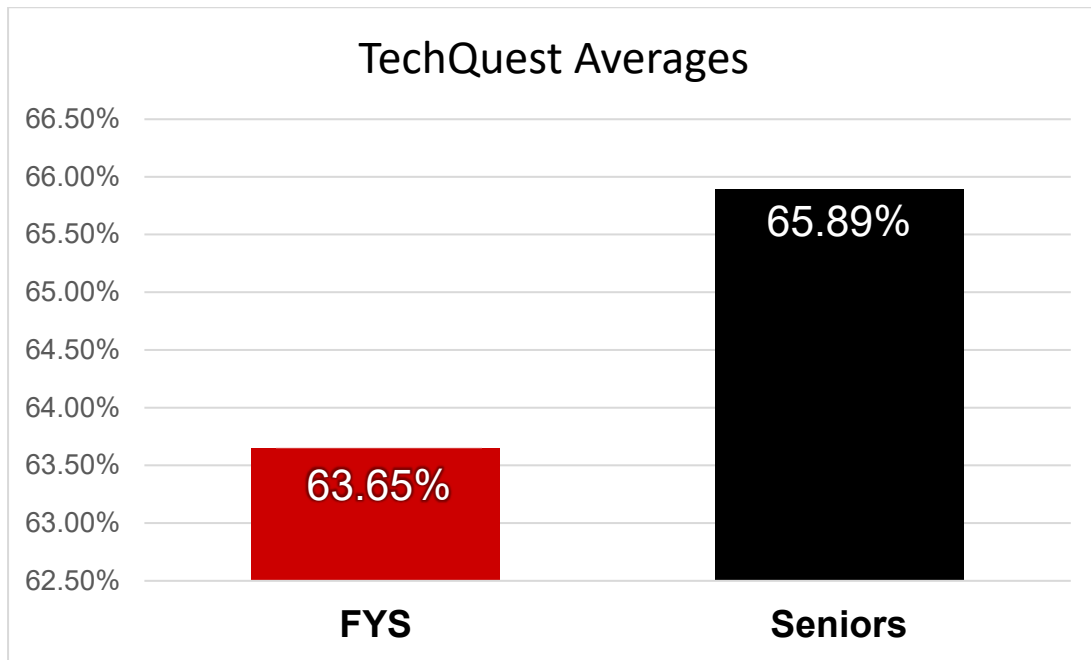
TechQuest was administered to first year and senior students during the 2021-2022 academic year. TTU Institutional Research provided OPA with a list of eligible students, a total of 17,226 students. OPA contacted 6,677 first-year students and 10,549 senior students to offer the assessment and incentive opportunity. OPA sent students a Qualtrics email invitation to participate in the assessment followed by weekly reminders throughout the month-long testing period. Of the 17,226 students contacted to complete the TechQuest, 701 first-year students and 943 seniors completed TechQuest for a total of 1,644 completions, a 9.5% response rate. The response rate was much higher than the 2019-2020 TechQuest of 1.48%, but that low response rate was likely due to COVID-19 impacts on students.

As an incentive for participating in the assessment, two first-year students and two seniors were randomly selected to win a \$500 scholarship toward tuition and fees for the respective semester in which they completed the assessment. As part of the data vetting process, entries which were submitted in less than seven minutes of starting the assessment were removed from the final data pool as this indicated students simply clicking through the assessment. The seven-minute average has been used for TechQuest validity purposes since it began in 2017 and was created by averaging times for OPA staff completion of the assessment. Due to

changes in questions for the 2023-2024 administration, we will re-evaluate the average testing time and adjust it as needed. Incomplete assessments were also removed from the final data.

Total Average Scores

Overall, the 701 first-year students (FYS) averaged 63.65 points (out of 100), while the 943 seniors averaged 65.89 points, a difference of 2.24 points.



When all first year and senior scores were analyzed, we found that the difference in means was statistically significant, with $t = -3.183$ and a p value <0.001 . So, while the point difference is small, it is still meaningful.

t-Test results	
t	- 3.183
One-tail p	<0.001

In addition to mean differences, first year students also had a standard deviation of 13.66, a maximum score of 100, and a minimum score of 15.62, while seniors had a standard deviation of 13.4, a maximum score of 100, and a minimum score of 9.38.

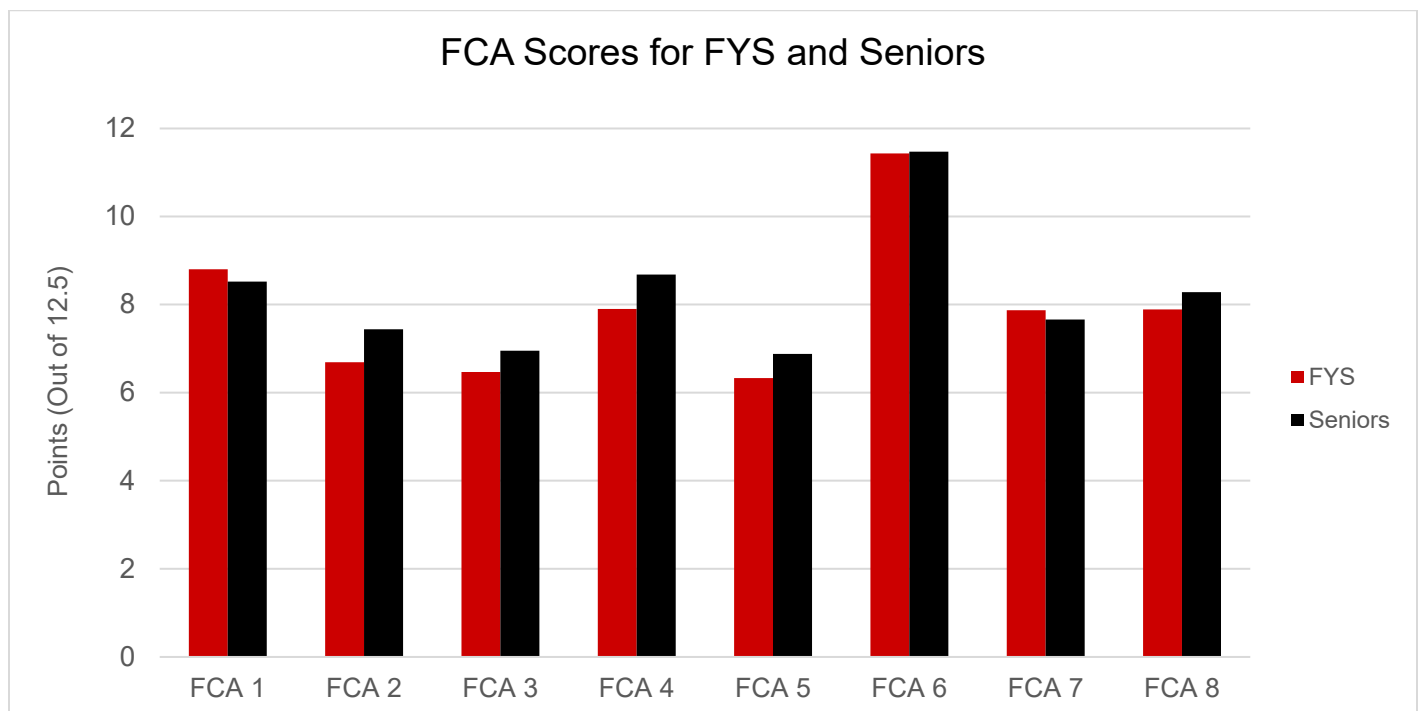
Descriptive Statistics		
	FYS	Seniors
Mean	63.65	65.89
SD	13.66	13.4
Max	100	100
Min	15.62	9.38

FCA Scores

Disaggregating the data provides a closer look at first year students' and seniors' scores in each of the eight Foundational Component Areas. For simplicity, the labels for each FCA are as follows: **FCA 1:** Communication; **FCA 2:** Mathematics; **FCA 3:** Life and Physical Sciences; **FCA 4:** Language, Philosophy, and Culture; **FCA 5:** Creative Arts; **FCA 6:** American History; **FCA 7:** Government/Political Science; **FCA 8:** Social and Behavioral Sciences.

FCA Means by Classification		
FCA	FYS	Seniors
FCA 1: Communication	8.8	8.52
FCA 2: Mathematics	6.96	7.44
FCA 3: Life and Physical Sciences	6.47	6.95
FCA 4: Language, Philosophy, and Culture	7.9	8.68
FCA 5: Creative Arts	6.33	6.88
FCA 6: American History	11.43	11.47
FCA 7: Government/Political Science	7.87	7.66
FCA 8: Social and Behavioral Sciences	7.89	8.28

Seniors outscored First Year students in every category except for FCA 1: Communication and FCA 7: Government/Political Science. Below is a chart visualizing the differences in score based on the possible 12.5 points per FCA section in the assessment.

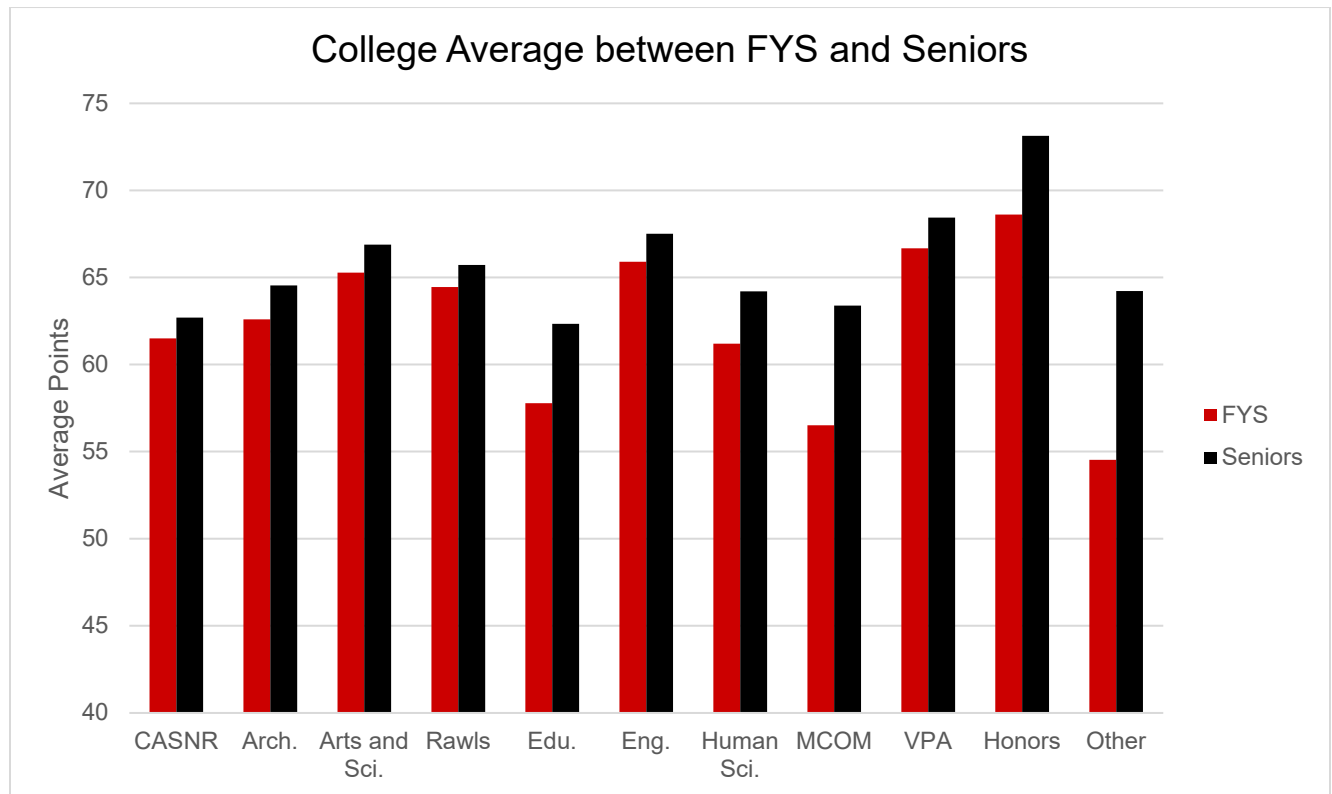


Analyzing FCA scores for both first-year students and seniors shows that while first year students scored higher in two categories than seniors, neither showed a statistically significant difference in scores. However, seniors did have statistically significant differences in scores for the following: FCA 2: Mathematics; FCA 3: Life and Physical Sciences; FCA 4: Language, Philosophy, and Culture; and FCA 5: Creative Arts. Seniors scores in FCA 8: Social and Behavior Sciences came close to statistical significance but missed the P-value of 0.05 by five thousandths of a point. A full table of *t* scores and P-values are below.

FCA <i>t</i>-tests		
FCA	<i>t</i>	One-Tailed p
FCA 1: Communication	1.92	0.27
FCA 2: Mathematics	- 3.33	<0.001
FCA 3: Life and Physical Sciences	- 2.92	0.002
FCA 4: Language, Philosophy, and Culture	- 5.02	<0.001
FCA 5: Creative Arts	- 2.26	0.012
FCA 6: American History	-0.24	0.406
FCA 7: Government/Political Science	1.16	0.123
FCA 8: Social and Behavioral Sciences	- 1.6	0.055

College Scores

Overall score averages were also disaggregated by college. While students from every college performed differently on the assessment, seniors scored a higher average in every college compared to first year students. This indicates an overall growth of knowledge in every college from the time students begin their studies at TTU to right before they graduate. The “Other” category could be undecided or unsure and was self-reported by each student during the assessment.



Below is a table listing all the average scores by college for both first year students and seniors. Again, the “Other” category could be undecided or unsure and was self-reported by each student during the assessment.

College Averages by Classification		
College	FYS	Seniors
Agriculture and Natural Resources	61.5	62.69
Architecture	62.59	64.54
Arts and Sciences	65.28	66.88
Rawls Business	64.45	65.72
Education	57.78	62.34
Engineering	65.9	67.51

Human Sciences	61.2	64.2
Media and Communication	56.51	63.38
Visual and Performing Arts	66.67	68.44
Honors College	68.61	73.13
Other	54.53	64.22

Student Demographics

Students also self-reported a variety of demographic information during the TechQuest assessment.

Below are frequency tables for classification, gender, race/ethnicity, and college enrollment for all first year and senior students.

Classification		
	FYS	Seniors
Freshman	608	0
Sophomore	71	0
Junior	22	0
Senior	0	943

Gender		
	FYS	Seniors
Male	230	340
Female	468	587
Other	1	7
Prefer not to Say	2	9

Race/Ethnicity		
	FYS	Seniors
African American Multiracial	18	29
American Indian/Alaskan Native	3	4
Asian	44	59
Black, Not of Hispanic Origin	35	64
Hispanic	190	269
Multiple	38	34
Native Hawaiian/Pacific Islander	3	2
White	354	453
Other	6	6
Prefer not to answer	10	15

College Enrollment

College	FYS	Seniors
Agriculture and Natural Resources	73	61
Architecture	23	23
Arts and Sciences	262	342
Rawls Business	90	99
Education	17	47
Engineering	102	169
Human Sciences	61	114
Media and Communication	20	43
Visual and Performing Arts	9	26
Honors College	15	5
Other	29	14

First Year Expectations and Senior Perceptions

In addition to questions about their knowledge of general education requirements, participants were asked a series of indirect questions to measure expected (first-year students) and perceived (senior students) learning. First-year students were asked to what degree they feel Texas Tech *will prepare* them in each area, whereas senior students were asked to what degree they feel Texas Tech *prepared* them in each area.

Student Confidence in FCA by Classification		
Problem Solving		
Rating	FYS	Seniors
Strongly Agree	218	246
Agree	391	487
Somewhat Agree	81	176
Disagree	1	23
Strongly Disagree	9	10
Communication		
Rating	FYS	Seniors
Strongly Agree	322	315
Agree	288	441
Somewhat Agree	77	148
Disagree	5	26
Strongly Disagree	8	12
Quantitative Skills		
Rating	FYS	Seniors
Strongly Agree	287	264
Agree	318	446
Somewhat Agree	77	175
Disagree	10	46
Strongly Disagree	8	11
Teamwork		
Rating	FYS	Seniors
Strongly Agree	305	356
Agree	281	394
Somewhat Agree	94	136
Disagree	11	41
Strongly Disagree	9	15
Social Responsibility		
Rating	FYS	Seniors
Strongly Agree	276	278
Agree	290	371
Somewhat Agree	105	201

Disagree	17	67
Strongly Disagree	12	25
Personal Responsibility		
Rating	FYS	Seniors
Strongly Agree	378	365
Agree	234	380
Somewhat Agree	72	144
Disagree	7	33
Strongly Disagree	9	20

Conclusion

Seniors scored higher in total point average than first year students, indicating an increase in learning during the 2021-2022 academic year. Although the difference in score average was statistically significant, the increase of 2.24 points could be seen as minimal or as an indication that improvements could be made to FCA courses during the academic careers of students. These concerns grow when considering the decrease in average score for students from first year to senior in the FCA 1: Communication and FCA 7: Government/Political Science sections. The Office of Planning and Assessment will continue to evaluate TechQuest results and make recommendations based on data analysis from the assessment.