

**CORE CURRICULUM ASSESSMENT REPORT:  
EMPIRICAL & QUANTITATIVE SKILLS**

**2016-2017**

**THE UNIVERSITY OF TEXAS AT SAN ANTONIO**

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## EXECUTIVE SUMMARY

To address the THECB’s definition of Empirical and Quantitative Skills, the CCAT developed three student learning outcomes (SLOs).

<b>ALIGNMENT WITH THECB CORE CURRICULUM OBJECTIVES</b>	
<b>THECB Objectives</b>	<b>UTSA Student Learning Outcomes</b>
<p><b>Empirical and Quantitative Skills:</b> <i>to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions</i></p>	<p>To demonstrate mastery of empirical &amp; quantitative skills, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Define a problem/topic with appropriate data and/or observable facts in a variety of contexts</li> <li>2. Analyze and process numerical data and/or observable facts to generate results</li> <li>3. Interpret results and draw informed conclusions</li> </ol>

To determine targets for the Empirical and Quantitative Skills objective, the CCAT consulted UTSA students’ self-reported results on the National Survey of Student Engagement (NSSE). We expected that the means, medians, and modes for all rubric criteria nested within each SLO would meet or exceed 3 (“acceptable”) on a 1-4 scale.

A pair of faculty from each of the disciplines represented in the sample attended a norming session and utilized a standard rubric to assess student samples. Each student sample was assessed by two faculty within the discipline. Measures of inter-rater reliability between faculty assessor pairs ranged from moderate to poor.

The student sample (n = 397) was representative of the population. Results are generally encouraging as the benchmarks (means, medians, modes = three on a scale 1-4) met or exceeded for all rubric criteria.

In the final section of this report, recommendations for student learning and for the assessment process are discussed. Perhaps the most salient CCAT recommendation is that faculty of core courses in the Mathematics; Life and Physical Sciences; and Social & Behavioral Sciences components (where EQS is required) should no longer be required to assess EQS at the course level. While the faculty are required by the THECB to *implement* EQS in these courses, they are no longer required to *assess* it for core curriculum purposes.

**CORE CURRICULUM ASSESSMENT REPORT:  
EMPIRICAL & QUANTITATIVE SKILLS  
2016-2017**

**DESCRIPTION OF OVERALL ASSESSMENT PROCESS**

The manner in which assessment is designed and conducted varies depending on its specific purpose. Core Curriculum course-level assessment seeks to discern how well a particular course meets requirements mandated by the Texas Higher Education Coordinating Board’s (THECB).

However, the overarching purpose of the Core Curriculum Assessment Team’s (CCAT) work is to address a different question: *How well are UTSA students mastering the six state-mandated Core Curriculum objectives?* (An overview of THECB Core Curriculum Requirements and CCAT Charge and Membership are included in Appendices A and B, respectively.)

To address this question, the CCAT designed an ongoing three-year assessment cycle whereby two (of the six) state-mandated objectives will be assessed each year. In year four, the cycle will begin again.

OVERVIEW OF UTSA CCAT ASSESSMENT SCHEDULE

STATE-REQUIRED OBJECTIVE	2016-17	2017-18	2018-19
Critical Thinking		X	
<b>Communication Skills</b>	<b>X</b>		
<b>Empirical &amp; Quantitative Skills</b>	<b>X</b>		
Teamwork			X
Social Responsibility		X	
Personal Responsibility			X

In 2016-2017, the Communication Skills and Empirical and Quantitative Skills (EQS) objectives were assessed. Details regarding Communication Skills Assessment are presented in a separate report. This report speaks to the question, *“How well are UTSA Roadrunners mastering Empirical and Quantitative Skills as defined by the THECB?”* “Roadrunner” is operationally defined as students who entered UTSA as first-time, full-time freshmen.

**ASSESSMENT OF EMPIRICAL & QUANTITATIVE SKILLS**

THECB Definition and UTSA Student Learning Outcomes. To address the THECB’s definition of Empirical and Quantitative Skills, the CCAT developed three student learning outcomes (SLOs).

ALIGNMENT WITH THECB CORE CURRICULUM OBJECTIVES	
THECB Objectives	UTSA Student Learning Outcomes
<b>Empirical and Quantitative Skills:</b> <i>to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions</i>	To demonstrate mastery of empirical & quantitative skills, students will be able to:

	1. Define a problem/topic with appropriate data and/or observable facts in a variety of contexts  2. Analyze and process numerical data and/or observable facts to generate results  3. Interpret results and draw informed conclusions
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Description of Assessment Process for Empirical & Quantitative Skills (EQS). To measure these SLOs, the CCAT determined which students would be sampled, designed assessment methodologies, developed scoring rubrics, conducted an online survey of faculty, and extended to faculty a call for samples of student work. Detailed information regarding methodologies and results is included in the following sections of this report.

### **ASSESSMENT METHODOLOGY: METHODS, MEASURES, & TARGETS**

Methods. As depicted in Appendix A, the EQS objective is required in the Mathematics; Life and Physical Sciences; and Social and Behavioral Sciences components of the Core Curriculum. The population was operationally defined as UTSA Roadrunners in the 2014, 2015, and 2016 cohorts who have completed two of these three Core Curriculum components and were currently enrolled in the third component. To avoid duplication in the Spring 2017 term, only Roadrunners *who were not sampled* in the Fall term were sampled in the Spring.

In the Fall and Spring semesters, a list of relevant students, their class schedules, and instructors was obtained from the Office of Institutional Research (OIR). Samples of student work were obtained via a two-step process. First, the population-specific course instructors were surveyed to identify courses that included existing assignments appropriate for this assessment. To assess EQS, the CCAT identified relevant core courses that included assignments, projects, or course exams with open-ended questions (i.e.: essay or short answer; not multiple-choice) that require students to define a problem, analyze data or observable facts, interpret results, and draw conclusions. (The Qualtrics Survey is included in Appendix C.)

**Table. Qualtrics Survey**

	Qualtrics Survey Emailed to Faculty	N Responded	% Responded
Fall	106	47	44%
Spring	77	48	62%

Faculty submitted samples only for the specifically requested students (not the entire class). Faculty also provided an answer key for the assignment. All student samples were redacted and uploaded to SharePoint.

Three faculty assessment workdays were held on July 11-13, 2017, 8:30-3:00, in the JPL Group Spot. A light breakfast and lunch were served each day. On Day 1, Dr. Nancy Martin and Art Pagano provided an overview of the assessment process and technology to be used. Dr. Terri Matiella, Senior Lecturer in Environmental Science, presented an overview of the standard rubric and conducted a calibration session using sample papers. Each paper was assigned to and assessed by two faculty evaluators who worked independently of one another. Each pair of assessors was assigned student work from their respective discipline. Faculty assessors utilized a standard rubric (see Appendix F) that addresses the EQS SLOs (not course content). Faculty assessors were paid varying amounts commensurate with the number of samples assessed, with the exception of one faculty member who donated his time. Payments ranged from \$300 to \$550.

The following disciplines were sampled:

College	Courses	Total	%
COLFA	ANT 2033	13	3%
COS	BIO 1243, 1414	158	35%
COB	ECO 2003, 2013, 2023	125	28%
COS	ES 2013	45	10%
COS	GEO 1013	43	10%
COS	MAT 1023, 1033, 1193	37	8%
COS	PHY 1963	12	2%
COLFA	SOC 1013	19	4%
Total		454	
<b>Total Assessed</b>	<i>Samples used for norming (BIO, ECO)</i>	<b>452</b>	

Measure Used to Assess EQS. A rubric was developed to assess empirical and quantitative skills. (See Appendix F.) All criteria were assessed using a four-point scale (excellent, acceptable, developing, unacceptable) as well as an option to mark “no score/not applicable.”

Targets. To determine targets for the Empirical and Quantitative Skills objective, the CCAT consulted UTSA students’ self-reported results on the National Survey of Student Engagement (NSSE). We expected that the means, medians, and modes for all rubric criteria nested within each SLO would meet or exceed 3 (“acceptable”) on a 1-4 scale.

## DESCRIPTION OF STUDENT POPULATION AND SAMPLE

The tables below describe the population and student sample for both semesters combined. Specifically, the students’ college, gender, ethnicity, and grade point average (GPA) are summarized. While these tables depict a student sample generally representative of the Roadrunner population, it is worth noting that the College of Business was slightly over-represented and the College of Engineering, slightly under-represented in the sample. The sample was otherwise representative of the student population.

**Table. Selected Student Population by College**

	Population	Sample

<b>College</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Architecture, Const & Planning	151	2%	6	1%
Business	1434	19%	128	31%
Education & Human Development	1163	15%	54	13%
Engineering	854	11%	17	4%
Liberal and Fine Arts	1861	25%	82	20%
Public Policy	276	4%	13	3%
Sciences	1341	18%	78	19%
University College	485	6%	32	8%
Grand Total	7565	100%	410	100%

**Table. Selected Student Population by Gender**

<b>Gender</b>	<b>Population</b>		<b>Sample</b>	
	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Female	4100	54%	230	56%
Male	3465	46%	180	44%
Grand Total	7565	100%	410	100%

**Table. Selected Student Population by Race/Ethnicity**

<b>Race/Ethnicity</b>	<b>Population</b>		<b>Sample</b>	
	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
American Indian or Alaska Native	8	0%	0	0%
Asian	568	8%	36	9%
Black or African American	888	12%	61	15%
Hispanic/Latino	4041	53%	201	49%
International	131	2%	6	1%
Native Hawaiian or Other Pacific Islander	17	0%	0	0%
Two or More Races	262	3%	14	3%
Unknown	38	1%	2	0%
White	1612	21%	90	22%
Grand Total	7565	100%	410	100%

**Table. Average, Minimum and Maximum GPAs for Selected Population**

	<b>Population</b>				<b>Sample</b>			
	<b>Average</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>	<b>Average</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
Freshman (n=49)	2.36	2.37	0.00	4.00	2.72	2.67	0.81	3.98
Sophomores (n=286)	2.97	2.97	0.91	4.00	3.06	3.07	1.45	4.00
Juniors (n=67)	3.09	3.09	1.52	4.00	2.93	2.90	1.76	4.00
Seniors (n=8)	3.32	3.38	2.05	4.00	3.26	3.17	2.81	3.82
Total	2.93	2.97	0.00	4.00	3.00	3.00	0.81	4.00

## RESULTS

Inter-rater Reliability (IRR). A pair of faculty assessors from each discipline worked independently of one another to evaluate each student paper. To obtain an estimate of inter-rater reliability (consistency between raters), the percent agreement between each pair of raters was determined. If a pair of raters assigned the exact same score every time, IRR would equal 100%. The percent agreement between faculty assessor-pairs, summarized in the table below, ranged from moderate to poor.

**Table. Percent Agreement Between Raters**

Discipline	Rater Pair	IRR % Agreement
BIO	A	60%
ECO	B	48%
ES	C	44%
GEO	D	56%
MAT	E	50%
PHY	F	52%
SOC	G	32%

*Results*

Scores from each pair of raters were averaged together to obtain an overall score for each student. On a scale from one to four (4 = Excellent, 3 = Acceptable, 2 = Developing, 1= Unacceptable), the following overall results were determined. Each rubric criterion included an option to mark “no score/not applicable.” Thus, the number of scores per criterion varies.

STUDENT LEARNING OUTCOMES (SLOs) & RUBRIC CRITERIA	n	MEAN	MEDIAN	MODE	STANDARD DEVIATION	RANGE
<b>Defines a problem/topic with appropriate data and/or observable facts</b>						
Demonstrates ability to make and evaluate important assumptions based on data and/or observable facts.	260	3.18	3	3.5	0.637	2.5
Demonstrates ability to convert relevant information into other forms (e.g., equations, graphs, diagrams, tables, words).	410	3.194	3	3	0.676	3
Demonstrates ability to select proper methodology or tools to analyze a problem.	367	3.119	3	4	0.718	3
<b>Analyzes and processes numerical data and/or observable facts to generate results</b>						
Demonstrates ability to analyze and process data and/or observable facts through calculation or another quantitative method.	408	3.165	3.5	4	0.783	3

<b>Interprets results and draws informed conclusions</b>						
Demonstrates ability to explain quantitative information presented in various forms (e.g., equations, graphs, diagrams, tables, words).	381	3.045	3	4	0.83	3
Demonstrates ability to make inferences and draw appropriate conclusions based on the analysis.	397	3.028	3	4	0.899	3

## SUMMARY & RECOMMENDATIONS FOR IMPROVEMENT

### Summary

The Texas Higher Education Coordinating Board (THECB) requires that Empirical and Quantitative Skills (EQS) are included in three components of the Core Curriculum: Mathematics; Life and Physical Sciences; and Social and Behavioral Sciences.

The Core Curriculum Assessment Team (CCAT) was formed shortly after the beginning of the Fall semester. The CCAT determined a three-year assessment cycle whereby two state-required objectives are assessed each academic year. The CCAT consists of 13 faculty members from across all UTSA colleges and is divided into six working groups – one for each objective. In its first semester of existence, the EQS Working Group achieved a great deal. In consultation with the full CCAT, the Working Group

- Developed student learning outcomes,
- Developed a plan for sampling students,
- Developed a scoring rubric to address the SLOs,
- Identified faculty whose core courses included existing assignments suitable for assessment, and
- Garnered samples of students' assignments that met CCAT parameters.

Three student learning outcomes were assessed:

*To demonstrate mastery of empirical & quantitative skills, students will be able to:*

1. *Define a problem/topic with appropriate data and/or observable facts in a variety of contexts*
2. *Analyze and process numerical data and/or observable facts to generate results*
3. *Interpret results and draw informed conclusions*

The population was operationally defined as UTSA Roadrunners in the 2014, 2015, and 2016 cohorts who have completed two of the three Core Curriculum components in which EQS is required and was currently enrolled in the third component. To avoid duplication, only Roadrunners *who were not sampled* in the Fall term were sampled in the Spring.

Samples of students' work (n = 452) were drawn from core courses within each of the three

required components. The sample was generally representative of the population and included seven different disciplines.

A pair of faculty from each of the disciplines represented in the sample attended a norming session and utilized a standard rubric to assess student samples. Each student sample was assessed by two faculty within the discipline. Measures of inter-rater reliability between faculty assessor pairs ranged from poor to moderate.

Results are generally encouraging as the benchmarks (means, medians, modes = three on a scale 1-4) were met for all criteria. The following recommendations are offered for improvement.

### **Recommendations**

For Student Learning. Targets for EQS were set at three (out of four) for each rubric criterion. No overall score was calculated because the n varied for each criterion. Results were fairly consistent as measures of central tendency for all rubric criteria met or slightly exceeded the expected targets. Any differences were negligible with means ranging from 3.028 to 3.194.

These results are generally encouraging and point to students' breadth of quantitative and empirical skills. It is worth noting that some of the courses included in this assessment were considered "Q" courses. These results may be a reflection of UTSA's Quantitative Literacy Program (QLP), our first Quality Enhancement Plan (QEP).

The QLP provided systemic emphasis on students' quantitative skills over the life of the five-year program. Specifically, the QLP provided faculty resources and professional development to bolster curriculum re-design.

Going forward, the CCAT makes two salient recommendations based on these results:

1. While the faculty in the Mathematics; Life and Physical Sciences; and Social & Behavioral Sciences components (where EQS is required) are required by the THECB to *implement* EQS, they are no longer required to *assess* it for core curriculum purposes. Passed unanimously by the CCAT, this recommendation will be re-visited in three years when EQS is assessed again.
2. Core curriculum faculty should continue to implement EQS in the same manner. However, it is important to ensure that faculty maintain and continue to develop their skill sets. To that end, the Associate Vice Provost - Teaching and Learning Services should work closely with the Associate Vice Provost – Core Curriculum & QEP to develop and deliver faculty support for those efforts.

### Regarding the Assessment Process.

#### **Technology**

The CCAT is indebted to the Office of Institutional Effectiveness staff for their generous time and expertise. Brian Cordeau's and Art Pagano's contributions were especially valuable to the success of this initiative.

*SharePoint*. A fairly complex SharePoint (SP) site was designed and developed for faculty to submit and assessors to access samples of students' work. The SP site worked very well for the submission process. However, it presented some frustrations during the assessment process.

#### Recommendation

Neither SharePoint nor Blackboard is designed for this purpose. Funds should be made available to procure an assessment management tool, e.g., Taskstream, to automate the process as much as possible.

#### **Methodology**

Inter-rater reliability (consistency) among raters is an important aspect of the assessment process. Although most were acceptable, the inter-rater reliabilities ranged from poor to moderate (32%-60%)

#### Recommendation

The nature of future calibration sessions should be revised to bolster inter-rater reliability. Future sessions should include presentation of student work samples that exemplify a clear differentiation between the four points on the scale (excellent, acceptable, developing, and unacceptable). Once all raters have reviewed examples of various quality papers, each set of raters should be provided time to discuss the rubric criteria among themselves, e.g.: What does each criterion mean and what are some examples of excellent, acceptable, etc.?

Then raters might be provided the opportunity to score a sample paper independently of one another and finally review that evaluation together. This three-step process might be repeated as needed to facilitate consistency among raters. Raters would work independently once they are comfortable that they are consistently interpreting the rubric in the same way.

Finally, we should carefully consider the benefits of rater triads rather than pairs. Including sets of three raters will create a multinomial distribution and result in more robust and reliable statistical analyses.

#### **Sampling**

EQS is required in the Mathematics; Life and Physical Sciences; and Social and Behavioral Sciences components. Student samples were drawn from seven disciplines within these components: Biology, Economics, Environmental Science, Geology, Mathematics, Physics, and Sociology. Although every effort was made to draw samples of student work, several disciplines within these components were not included in the sample.

#### Recommendation

In the next assessment cycle, every effort should be made to focus on a broader cross section of disciplines within the components that require EQS or to sample different disciplines. Drawing student work from different disciplines will further validate these results.

#### **Conclusion**

The 2016-17 academic year marked the first time UTSA has conducted assessment in this manner. The process, although not perfect, was generally successful. In reviewing this report it is important to bear in mind that assessment is an iterative process. Its primary purposes are to inform and to improve student learning. To that end, both goals were met.

**APPENDIX A.**  
**OVERVIEW OF THECB CORE CURRICULUM STATE REQUIREMENTS**

Foundational Component Area	SCH	● Required Core Objectives			○ Optional Core Objectives		
		CT	COM	EQS	TW	SR	PR
Communication	6	●	●	○	●	○	●
<p>Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively.</p> <p>Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.</p>							
Mathematics	3	●	●	●	○	○	○
<p>Courses in this category focus on quantitative literacy in logic, patterns, and relationships.</p> <p>Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.</p>							
Life and Physical Sciences	6	●	●	●	●	○	○
<p>Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.</p> <p>Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.</p>							
Language, Philosophy & Culture	3	●	●	○	○	●	●
<p>Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience.</p> <p>Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.</p>							
Creative Arts	3	●	●	○	●	●	○
<p>Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination.</p> <p>Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.</p>							
American History	6	●	●	○	○	●	●
<p>Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area.</p> <p>Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.</p>							
Government/Political Science	6	●	●	○	○	●	●
<p>Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas.</p> <p>Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.</p>							
Social and Behavioral Sciences	3	●	●	●	○	●	○
<p>Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human.</p> <p>Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.</p>							
Component Area Option	6	●	●	○	○	○	○
<p>a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas</p> <p>b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that:</p> <p>(i) Meet(s) the definition specified for one or more of the foundational component areas; and</p> <p>(ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.</p>							

## Summary of Guidelines for Texas Core Curriculum Requirements

**Core Objectives.** Through the Texas Core Curriculum, students will prepare for contemporary challenges by developing and demonstrating the following core objectives:

(A) **Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;

(B) **Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication;

(C) **Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;

(D) **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal;

(E) **Social Responsibility:** to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

(F) **Personal Responsibility:** to include the ability to connect choices, actions and consequences to ethical decision-making;

**APPENDIX B**  
**CORE CURRICULUM ASSESSMENT TEAM**  
**CHARGE & STRUCTURE**

**CHARGE**

The Core Curriculum Assessment Team (CCAT) will support the overarching assessment of the six state-mandated core curriculum objectives by developing:

- Outcome statements for each state-required objective
- Assessment Methodologies & Guidelines for implementation, e.g.: sampling, timeline, etc.
- Measures (e.g.: rubrics)
- Feedback processes

Overarching assessment will consider each state-required objective in a broader sense than course-based assessment by evaluating each objective across the entire core curriculum. Results of a more broad-based assessment will inform improvement across the core curriculum.

**STRUCTURE**

Academic deans recommended faculty members to serve on the CCAT who have expertise in at least one state-required core objective, knowledge of and/or interest in assessment and/or undergraduate education. Deans indicated each nominee's area(s) of expertise.

Appointed by Provost, the team is composed of representatives from all UTSA colleges (proportional to the colleges' undergraduate majors and involvement in the core curriculum) and a Faculty Senate representative. The CCAT consists of 13 faculty members and is chaired by the Associate Vice Provost—Core Curriculum & QEP.

**MEMBERS OF THE CORE CURRICULUM ASSESSMENT TEAM  
2016-2017**

**NANCY K. MARTIN, *Chair***

Associate Vice Provost

Core Curriculum & QEP

**SAADAT BEESON, ASSOCIATE PROFESSOR**

Architecture, Construction and Planning

Faculty Senate Representative

**MARCO CERVANTES, ASSOCIATE**

**PROFESSOR**

College of Education & Human Development

**PEPE CHANG (2016-17), ASSOCIATE**

**PROFESSOR**

College of Business

**MANUEL DIAZ, PROFESSOR**

*EQS Sub-Team*

College of Engineering

**MICHAEL DOYLE (FALL 2016),**

**ENDOWED UNIVERSITY CHAIR**

College of Sciences

**DAVID SENSEMAN, ASSOCIATE PROFESSOR**

College of Sciences

**MARK LEUNG, ASSOCIATE PROFESSOR**

*EQS Sub-Team*

College of Business

**TERRI MATIELLA, SENIOR LECTURER**

*EQS Sub-Team*

College of Sciences

**KASEY NEECE-FIELDER, EX OFFICIO**

**ASSOCIATE VICE PROVOST**

Office of Institutional Effectiveness

**MARITA NUMMIKOSKI, ASSOCIATE**

**PROFESSOR**

College of Liberal & Fine Arts

**GAIL PIZZOLA, WRITING PROGRAM**

**DIRECTOR**

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**DAVID ROMERO, ASSOCIATE PROFESSOR**

College of Liberal & Fine Arts

**TARA SCHMIDT, SCHOLARLY RESEARCH**

**LIBRARIAN II**

**MARIE TILLYER, ASSOCIATE PROFESSOR**

*EQS Sub-Team*

College of Public Policy

**APPENDIX C.**  
**QUALTRICS EMAIL & SURVEY: EMPIRICAL & QUANTITATIVE SKILLS**

The Core Curriculum Assessment Team (CCAT), composed of faculty from all UTSA colleges, is charged with determining how well our students have mastered six state-mandated objectives. This year, the CCAT is evaluating the **Empirical & Quantitative Skills** objective. To that end, the CCAT needs your help to determine whether your course(s) generate(s) student work (e.g., assignments, exams, projects) matching three student learning outcomes.

To demonstrate mastery of empirical and quantitative skills, students will be able to:

- a. Define a problem/topic with appropriate data and/or observable facts
- b. Analyze and process numerical data and/or observable facts to generate results
- c. Interpret results and draw informed conclusions.

Please **respond to the yes/no questions below on or before Wednesday, March 8.**

If you have any questions, contact a CCAT member:

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Nancy Martin, University College, [Nancy.Martin@utsa.edu](mailto:Nancy.Martin@utsa.edu)

**SURVEY:**

**The following course(s) has been identified as a possible source from which student work may be sampled.**

**[Insert specific Course Prefix #, Section(s)]**

**ASSIGNMENT PARAMETERS:**

Do your existing requirements for this course include **assignments or projects** that require students to define a problem, analyze data or observable facts, interpret results, and draw conclusions?

(Yes/No)

Do your existing requirements for this course include exams with **open-ended questions** (i.e.: essay or short answer; not multiple-choice) that require students to define a problem, analyze data or observable facts, interpret results, and draw conclusions?

(Yes/No)

**Thank you for your participation.**

*If your existing course requirements include assignments appropriate for this assessment, we will be in contact at a later date with additional information, including which students in your class(es) will be sampled.*

**APPENDIX D.**  
**CALL FOR STUDENT SAMPLES**

Based on your survey responses, at least one of your courses has been identified for sampling of students' *Empirical & Quantitative skills* (EQS). EQS is required in the Math, Science and Social & Behavioral Sciences components of the core. For this assessment, we have identified students who have completed 2 of these 3 core components and are currently enrolled in the third component.

To assess EQS, we ask that you please provide the following (preferably in pdf \*, but a hard copy is acceptable) for only for the specific student(s) identified in the attached list **on or before noon, Tues., Dec. 20, 2016:**

1. Brief explanation of the assignment and
2. Clean copy of your existing assignment, project, or open-ended exam question with an empirical and/or quantitative component that includes defining a problem, analyzing data or observable facts, interpreting results, and drawing conclusions

*If possible, remove grades and instructor comments from samples prior to submission.*

\* NOTE: See below for submission directions.

Students' samples will be evaluated using a common rubric that addresses only the SLOs for the Empirical & Quantitative Skills objective listed below (not course content).

Student Learning Outcomes:

To demonstrate mastery of empirical & quantitative skills, students will be able to:

- c. Defines a problem/topic with appropriate data and/or observable facts in a variety of contexts
- d. Analyzes and processes numerical data and/or observable facts to generate results
- e. Interprets results and draws informed conclusions

The scoring team will come from outside your department and be experienced in scoring empirical and quantitative work. Student samples will be redacted so that neither students nor faculty are identifiable to the scoring team.

**For Electronic submission:**

Go to <https://utsacloud.sharepoint.com/sites/ucdo/ccat/SitePages/Home.aspx>

**Submit**

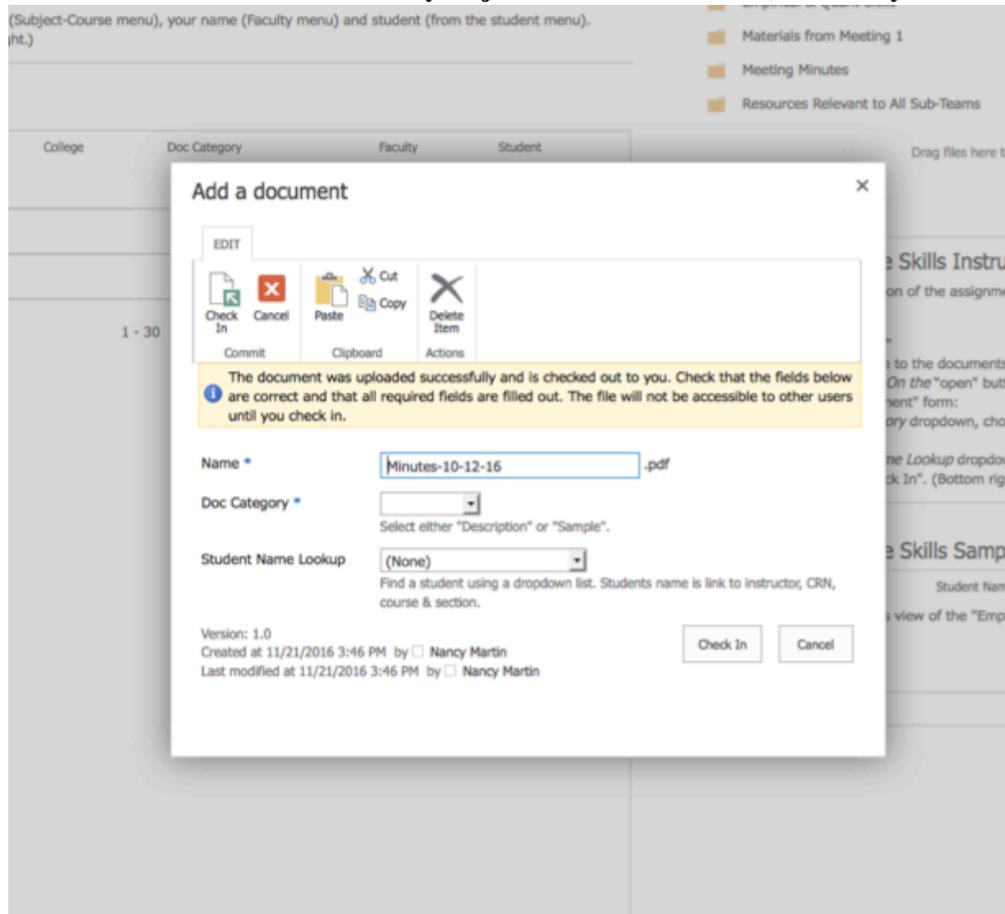
- (a) Brief explanation of the assignment and
- (b) Sample only for the student(s) identified (not the entire class)

**Instructions for electronic submission:**

From <https://utsacloud.sharepoint.com/sites/ucdo/ccat/SitePages/Home.aspx>

1. Click on your name to be redirected to SharePoint
2. Login using your abc123 and passphrase.
3. Click on the orange box (top left corner), > click on "SharePoint" > Core Assessment Team.
4. Click on "+ Add document."

5. Click on “Upload” and browse to the documents on your computer.
6. Click on the document > click “open.” Then click “OK.”
7. From the Doc Category menu, choose either “Description” (to submit the assignment description) or “Sample” (to submit the student sample).
8. Use the Student Name Lookup dropdown list to select a student.
9. Click “Save” or “Check In.” (Bottom right.)
10. Repeat the process for all student samples submitted. (Upload the “description” only once.)
11. You should see the documents you just submitted. If not, refresh your browser.



**If necessary, submit hard copies to:**

Dr. Nancy Martin, Associate Vice Provost  
 University College GSR 2.210  
**No later than noon, Tues., Dec. 20, 2016**

**Alternatively, you may call X 5191 to arrange for materials to be picked up.  
*Thank you for submitting materials for this important assessment process.***

**APPENDIX E.  
EMPIRICAL & QUANTITATIVE SKILLS RUBRIC**

**I. DEFINES A PROBLEM/TOPIC WITH APPROPRIATE DATA AND/OR OBSERVABLE FACTS**

1. Makes and evaluates important assumptions based on data and/or observable facts.

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable

2. Converts relevant information into other forms (e.g., equations, graphs, diagrams, tables, words).

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable

3. Selects proper methodology or tools to analyze a problem.

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable

**II. ANALYZES AND PROCESSES NUMERICAL DATA AND/OR OBSERVABLE FACTS TO GENERATE RESULTS**

4. Analyzes and processes data and/or observable facts through calculation or another quantitative method.

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable

**III. INTERPRETS RESULTS AND DRAWS INFORMED CONCLUSIONS**

5. Explains quantitative information presented in various forms (e.g., equations, graphs, diagrams, tables, words).

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable

6. Makes inferences and draws appropriate conclusions based on the analysis.

4	3	2	1	No Score
Excellent	Acceptable	Developing	Unacceptable	Not Applicable