General Education Assessment Report

2016-17

UK CORE DESIGN AND OVERSIGHT

The UK Core was approved by the University Senate in May 2009 and implemented for the Fall 2011 semester. The Core curriculum was designed to foster student achievement in four overarching learning outcomes:

I. Students will demonstrate an understanding of and ability to employ the process of intellectual inquiry.

II. Students will demonstrate competent written, oral, and visual communication skills both as producers and consumers of information.

III. Students will demonstrate an understanding of and ability to employ methods of quantitative reasoning.

IV. Students will demonstrate an understanding of the complexities of citizenship and the process for making informed choices as engaged citizens in a diverse, multilingual world.

Each of these broad learning outcomes are made more explicit through the Outcomes and Assessment Framework (see Appendix 1). Moreover, they have been mapped to the statewide learning outcomes as shown in Appendix 2. In order to fulfill the Core requirements, students must complete a minimum number of credit hours through satisfactory completion of courses that have been mapped to one of the four learning outcomes. This curricular framework is shown in Table 1. In total, students must complete a minimum of 30 credit hours as part of the Core. Students are permitted to complete courses for Core credit that also satisfy pre-major or major requirements. Courses that have been approved as part of the Core for the 2017-18 academic year are listed in Appendix 3. Information on the availability of Core courses is provided on the UK Registrar website.

Oversight of the Core resides with the UK Core Education Committee (UKCEC), which is a standing committee of the University Senate. The UKCEC reviews and approves course proposals for inclusion in the Core; conducts on-going review of courses to ensure continued alignment with the Core Outcomes and Assessment Framework; and works collaboratively with the Office of Strategic Planning & Institutional Effectiveness (OSPIE) to conduct assessment and program review of the Core.

Table 1. UK Core Curricular Framework

Area	Credits
I. Intellectual Inquiry	
Arts & Creativity	3
Humanities	3
Social Sciences	3
Natural/Physical/Mathematical Sciences	3
II. Composition & Communication	
Composition & Communication I	3
Composition & Communication II	3
III. Quantitative Reasoning	
Quantitative Foundations	3
Statistical Inferential Reasoning	3
IV. Citizenship	
Community, Culture, & Citizenship in USA	3
Global Dynamics	3
Total	**30[a]**

[a] Some UK Core courses may exceed 3 credit hours, most notably for Natural/Physical/Mathematical Sciences and Quantitative Foundations.

ASSESSMENT PLAN

The Core learning outcomes are each assessed on a two-year cycle, with individual Core courses scheduled to be assessed once every four years. The assessment plan relies upon course-embedded assignments (artifacts) that have been designed by faculty within the departments who teach the courses. Course instructors are notified by OSPIE (in the past the Office of University Assessment) at the start of the semester that their courses are scheduled to be assessed, and are asked to complete a form providing information on the assignment(s) to be used for Core. In most cases the assignments are located with the university's LMS (Canvas), which are extracted by IT and provided to OSPIE. In some instances

instructors submit paper copies of assignments to OSPIE staff.

Once the requested artifacts are received by OSPIE, they are sampled and uploaded into Aqua, the learning outcomes assessment database. The institution's strategy for sampling follows that 5 artifacts are sampled for sections with enrollment of 50 or less, 10 artifacts for sections with enrollment of 51 to 100, and 15 artifacts for sections with more than 100 students. However, this strategy was modified for 2016-17 due to limited participation by course instructors.

Scoring of student artifacts is performed using a set of standardized rubrics. A unique rubric has been developed for each area of the Core; however, common themes are woven throughout the different areas of Intellectual Inquiry. Copies of the rubrics that were used to assess artifacts in 2016-17 (Intellectual Inquiry Arts & Creativity, Humanities, Math/Natural/Physical Science, and Social Sciences; Quantitative Foundations) have been included in Appendix 4. The full set of UK Core rubrics can be accessed on the UK Core website.

Evaluators, drawn primarily from current or past Core course instructors, are recruited to score the student artifacts. Evaluators are asked to score artifacts within the same Core area (e.g. Arts & Creativity), but are generally not assigned students within their own courses. Once all scoring is completed, OSPIE collates the data and provides a summary report to the CPE and the UKCEC. The UKCEC reviews the report to investigate strengths and weaknesses of student performance within and across learning outcomes and identifies opportunities for improvement.

2016-17 ASSESSMENT METHODS

The following Core learning outcomes were targeted for assessment during the 2016-17 academic year:

I. Intellectual Inquiry
   i. Arts & Creativity
   ii. Humanities
   iii. Math/Natural/Physical Science
   iv. Social Sciences

II. Quantitative Reasoning
   i. Quantitative Foundations

The number of courses that were targeted, the number providing artifacts, and the number with usable artifacts is displayed in Table 2. From the table, the rate of course participation was lower than expected, with less than half of courses providing an artifact for Humanities, Natural/Physical/Mathematical Sciences, and Social Sciences. Of those courses providing artifacts, it was determined that a portion were not usable for a number of reasons. Artifacts could not be included if necessary pages or parts of the assignment were omitted (generally paper submissions), the instructions given to the student by the instructor were not provided, or the assignment was in poor alignment with the standardized rubric.

Table 2. 2016-17 Course Participation by Core Area

Course Participation by Core Area	Courses Targeted *N*	Courses Providing Artifacts *N (%)*	Courses Included [a] *N (%)*
Intellectual Inquiry			
Arts & Creativity	20	12 (60)	7 (35)
Humanities	53	19 (36)	9 (17)
Natural/Physical/ Mathematical Sciences	13	6 (46)	5 (38)
Social Sciences	11	5 (45)	4 (36)
Quantitative Reasoning			
Quantitative Foundations	7	5 (71)	3 (43)

[a]Courses were not included for assessment if necessary pages from the artifacts were missing; the instructions given to the student by the instructor were absent; or the assignment poorly aligned with the standardized rubric.

The number of evaluators, artifacts scored, and artifacts receiving multiple reviews is shown in Table 3. Evaluators were recruited by OSPIE who taught one or more Core courses during the past two academic years in the areas to be assessed

for 2016-17, and were incentivized with a small stipend. All but two evaluators were normed during scheduled sessions, in order to increase consistency and interrater reliability across evaluators. The two evaluators that were not normed were unable to attend any of the available sessions.

Table 3. Evaluators and Artifacts Scored by Area

Course Participation by Core Area	Evaluators *N*	Distinct Artifacts Scored *N*	Artifacts with 2nd Reviews *N (%)*
Intellectual Inquiry			
Arts & Creativity	3	40	15 (38)
Humanities	9	95	40 (42)
Natural/Physical/ Mathematical Sciences	7	112	31 (28)
Social Sciences	7	92	23 (25)
Quantitative Reasoning			
Quantitative Foundations[a]	4	40	11 (28)

[a] Quantitative Foundations courses in non-math disciplines could not be included due to the fact that only one course provided artifacts and those artifacts were missing pages needed for scoring.

The number of distinct artifacts scored for each area ranged from 40 to 112, and the number of evaluators from 3 to 9. Additional artifacts were available for scoring in some areas, but could not be evaluated due to the limited number of evaluators. The targeted percent of artifacts with a second review was 10-15 percent. From column 3, a much larger percentage (25-42 percent) of artifacts received a second review, largely due to confusion among evaluators within the scoring system (Aqua) regarding which students they were responsible for evaluating.

Data from the artifact scoring were extracted and compiled from Aqua and used to create this report, which will be shared with CPE and the UKCEC.

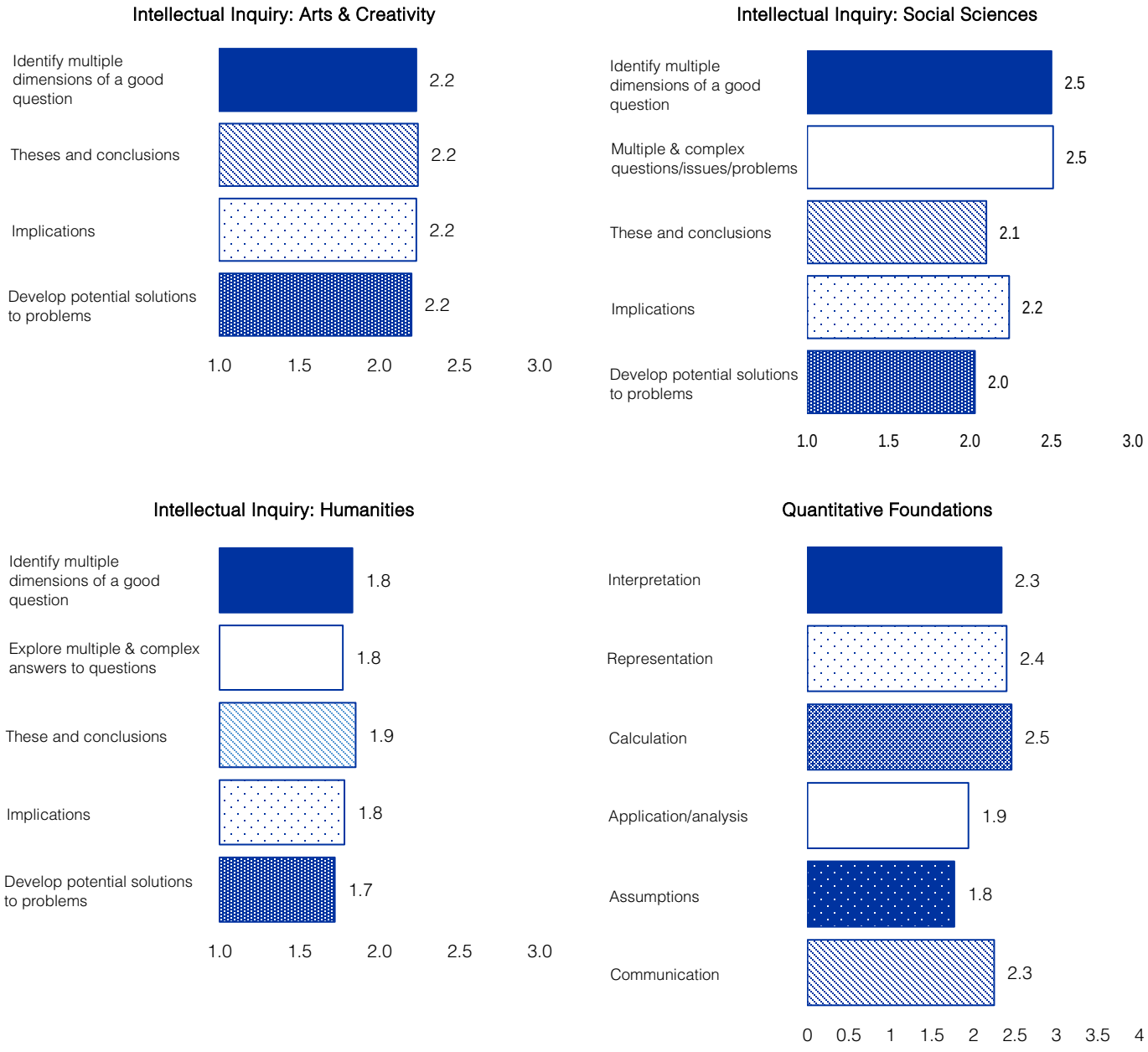
2016-17 ASSESSMENT RESULTS

Summary statistics for each of the five Core areas that were evaluated are provided in Figures 1 and 2. The frequency distributions are shown in Tables 4 and 5 in Appendix 5. The rubrics for the four Intellectual Inquiry areas (Arts & Creativity, Humanities, Math/Natural/ Physical Sciences, and Social Sciences) contain a three point rating scale consisting of: 1=does not meet expectations; 2=meets expectations; and 3=exceeds expectations. The target for each area of Intellectual Inquiry is for all students to score at a 2 or a 3. The rubric used to assess Quantitative Foundations is the AAC&U Value Rubric for Quantitative Literacy. The scale contains 5 points: 0=benchmark not met; 1=benchmark met; 2=first milestone met; 3=second milestone met; and 4=capstone level met. It is expected that all students are at or above a 1 for Quantitative Literacy.

In Figure 1, the mean student score for each criteria on the rubric is shown for each area of the Core that was assessed. In terms of overall score for Intellectual Inquiry (not shown), student performance was highest on Arts & Creativity (M=2.2) and Social Sciences (M=2.2), and lowest on Humanities (M=1.8) and Math/ Natural/Physical Sciences (M=1.9). If taken at this high level, the means suggest that student performance was generally at or slightly below the level of “meets expectations.” The mean score for Quantitative Foundations must be interpreted separately from the four Intellectual Inquiry areas due to the difference in the rubric scale. The mean student score for this area was M=2.2, suggesting that students generally scored at or slightly above the first milestone level.

The individual criteria on the rubrics provide greater insight into students’ specific strengths and weaknesses within each area of the Core. Student performance in the four criteria of Arts & Creativity were highly uniform, each with a mean of 2.2. Mean student scores were also fairly consistent over the five criteria for Humanities and the Math/Natural/Physical Sciences, spanning from M=1.7 to M=1.9. For the Social Sciences, students

Figure 1. Mean Student Scores by Core Area and Rubric Criteria

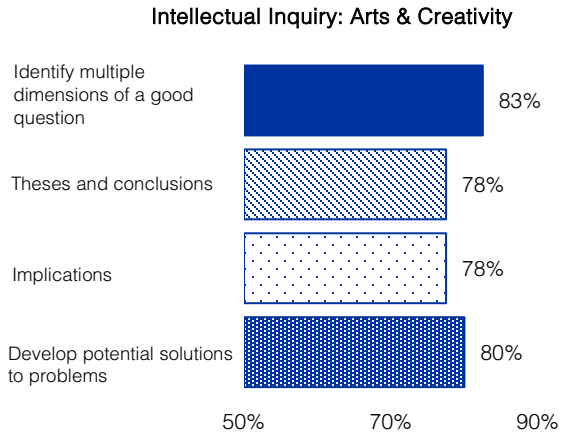


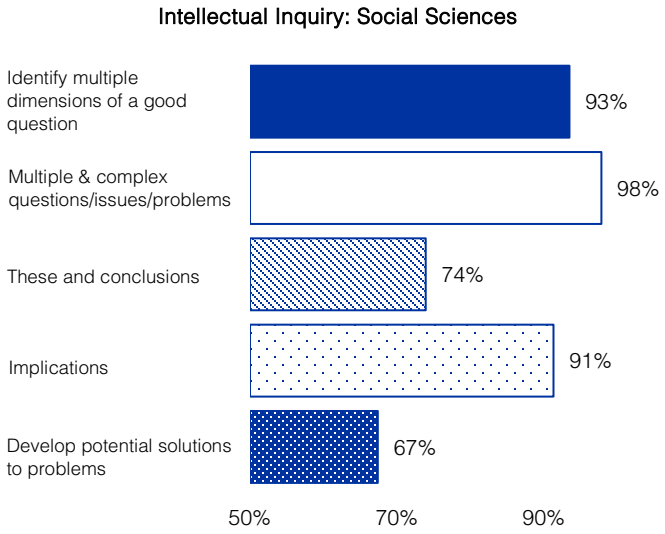
Rubric Scales

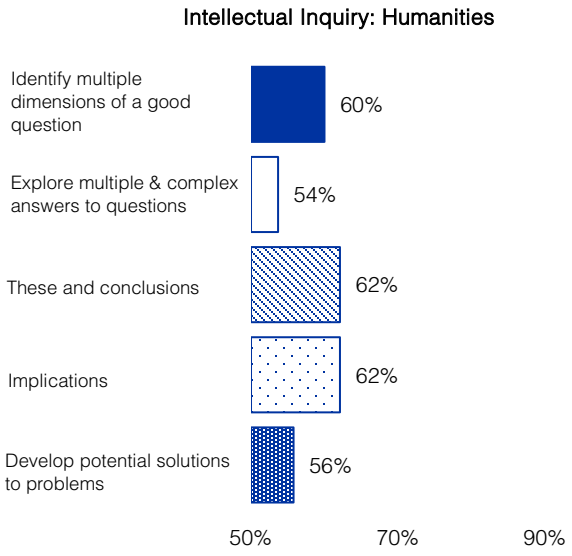
Intellectual Inquiry
1 = Does not meet expectations
2 = Meets expectations
3 = Exceeds expectations

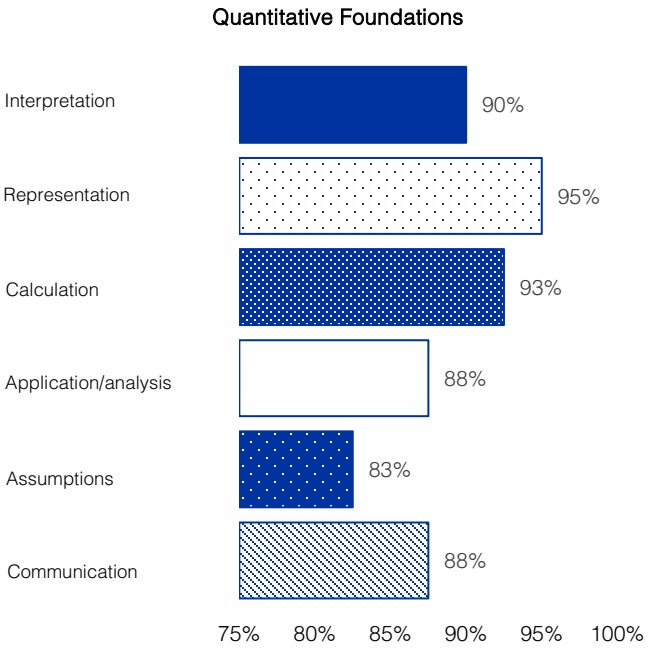
Quantitative Foundations
0 = Benchmark not met
1 = Benchmark met
2 = First milestone met
3 = Second milestone met
4 = Capstone level met

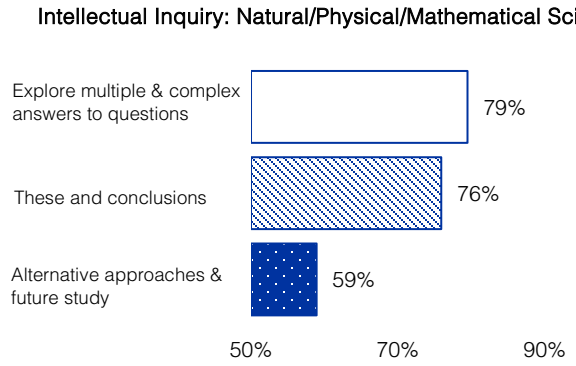
Figure 2. Mean Student Scores by Core Area and Rubric Criteria











on average earned higher scores on the criteria of "identify multiple dimensions of a good question" and "multiple and complex questions" compared to "theses and conclusions," "implications," and "develop potential solutions to problems." Mean student scores were also somewhat higher for "interpretation," "representation," "calculation," and "communication" than for "application and analysis" or "assumptions" in Quantitative Foundations.

Figure 2 shows the percentage of students scoring at or above the targeted benchmark level for each area. With the exception of Humanities, more than 75 percent of students met the benchmark for nearly all criteria (15 of 18). The percentage of students scoring at or above the benchmark level for the Humanities criteria ranged from 54 to 62 percent, and represents an area for possible future improvement. Student performance was also somewhat low on the third criteria for Math/Natural/ Physical Sciences, "alternative approaches & future study," for which only 59 percent of students achieved the desired benchmark.

INTERPRETATION AND USE OF RESULTS

A number of serious challenges were encountered throughout the 2016-17 Core assessment cycle that call into question the reliability and validity of the results collected. As noted above, the rate of participation among courses that were scheduled for assessment was low (45 percent). Moreover, a number of courses and sections for which artifacts were submitted could not be included due to missing components/ instructions or poor alignment of the assignment to the rubric. The decision was made to omit such artifacts in order to avoid producing results that did not accurately reflect student achievement; however this likely came at a cost of obtaining a representative sample.

There were also challenges recruiting a sufficient number of evaluators. This led to some eligible artifacts not being scored as well as inclusion of two evaluators who were unable to attend the training sessions and therefore could not be normed on the rubrics. Lastly, 2016-17 data will not be reported at the department or course level due to the issues noted above and historic concerns among faculty with respect to how the more detailed data will be used. However, without these data, individual course instructors will likely find it difficult to interpret the results as a means of guiding improvements to their courses.

Although this report will be shared with the UKCEC, improvements over the next few years will focus primarily upon refining the assessment process so that accurate and useful data can be obtained and disseminated. Notable changes that will be made for the 2017-18 or 2018-19 assessment cycle include:

1. Improved communication and timing of communication to course instructors and department chairs regarding expectations for Core assessment.
2. Expanded recruitment of evaluators to include all instructors with experience in appropriate disciplines.
3. Scheduling of training/norming sessions immediately after finals week to accommodate as many evaluators as possible.
4. Creation and dissemination of department-level Core assessment reports.
5. Provision of new faculty development resources involving classroom assessment techniques specifically focused on UK Core.

In addition to the immediate changes noted above, OSPIE is working closely with the UKCEC to identify and implement other improvements to Core assessment. Initial discussions have centered upon methods of increasing instructor and department participation and buy-in, establishing

a formal review process of Core course syllabi and assessments, and creating a formal reporting structure that will improve documentation of faculty-led changes to the Core.

ADDITIONAL INFORMATION

Questions or requests for additional data and information regarding this report or UK Core assessment can be directed to the UK Office of Strategic Planning & Institutional Effectiveness (ospie@uky.edu).

Appendix 1

Learning Outcomes
of
General Education

(Approved by the University Senate December 8, 2008)

I. *Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry.* [12 credit hours]

Outcomes and Assessment Framework

Students will be able to identify multiple dimensions of a good question;[1] determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; evaluate theses and conclusions in light of credible evidence; explore the ethical implications of differing approaches, methodologies or conclusions; and develop potential solutions to problems based on sound evidence and reasoning.

Curricular Framework

Students will take four 3-credit courses, one in each of the four broad knowledge areas defined above.

II. *Students will demonstrate competent written, oral, and visual communication skills both as producers and consumers of information.* [6 credit hours]

Outcomes and Assessment Framework

Students will demonstrate the ability to construct intelligible messages using sound evidence and reasoning that are appropriate for different rhetorical situations (audiences and purposes) and deliver those messages effectively in written, oral, and visual form. Students will also demonstrate the ability to competently critique (analyze, interpret, and evaluate) written, oral, and visual messages conveyed in a variety of communication contexts.

Curricular Framework

Students will take one 3-hour course focusing on the development of effective writing skills, and one 3-hour integrated communications course focusing on oral and visual communication skills, along with continued development of written communication skills.[2]

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[1] i.e., interesting, analytical, problematic, complex, important, genuine, researchable…

[2] This proposal assumes the continuation of the Graduation Writing Requirement currently in place.

III. *Students will demonstrate an understanding of and ability to employ methods of quantitative reasoning.* [6 credit hours]

Outcomes and Assessment Framework

Students will (a) demonstrate how fundamental elements of mathematical, logical and statistical knowledge are applied to solve real-world problems; and (b) explain the sense in which an important source of uncertainty in many everyday decisions is addressed by statistical science, and appraise the efficacy of statistical arguments that are reported for general consumption.

Curricular Framework

Students will take one 3-hour course on the application of mathematical, logical and statistical methods, and one 3-hour course devoted to a conceptual and practical understanding of statistical inferential reasoning.

IV. *Students will demonstrate an understanding of the complexities of citizenship and the process for making informed choices as engaged citizens in a diverse, multilingual[3] world.* [6 credit hours]

Outcomes and Assessment Framework

Students will recognize historical and cultural differences arising from issues such as ethnicity, gender, language, nationality, race, religion, sexuality, and socioeconomic class; students will demonstrate a basic understanding of how these differences influence issues of social justice, both within the U.S. and globally; students will recognize and evaluate the ethical dilemmas, conflicts, and trade-offs involved in personal and collective decision making.

Curricular Framework

Students will take two courses, each with a topical or regional focus. The first course will include critical analysis of diversity issues as they relate to the contemporary United States. The second will be a non-US based course that includes critical analysis of local-to-global dynamics as they relate to the contemporary world. In addition, each course must address at least 2 of these 4 topics: societal and institutional change over time; civic engagement; cross-national/comparative issues; power and resistance.[4]

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[3] Current University of Kentucky entrance requirements include 2 years of second-language study in high school; this knowledge requirement should be assessed upon students' entrance to the University, as a prerequisite for the fulfillment of Learning Outcome IV.

[4] This proposal recognizes also that such issues will be addressed throughout the students' course of study, building effectively upon the foundation of the General Education core curriculum.

Appendix 2

Table A2. Map of UK Core Outcomes to Kentucky Statewide Learning Outcomes

UK Core Outcome	Statewide Learning Outcome	Rationale
Intellectual Inquiry	Arts & Humanities Natural Sciences Social and Behavioral Sciences	Intellectual Inquiry courses establish a foundation for critical and thoughtful approaches to solving problems and promoting intellectual development in the following areas: Arts & Creativity, Humanities, Natural/Physical/Mathematical Sciences, and Social Sciences. This outcome area promotes the development of evidence-based thinkers: students capable of understanding what critical argument demands and what it offers as a way of understanding ourselves, others, and the world around us.
Composition & Communication	Written & Oral Communication	Both outcomes address communicating in a variety of forms and contexts with an emphasis on information literacy and critical analysis.
Citizenship	Social & Behavioral Sciences	The UK Core and statewide outcomes overlap in asking students to analyze problems pertinent to human experience. The UK Core area outcome is particularly focused on historical and cultural differences arising from a variety of human dynamics and experiences. This is one of two UK Core area outcomes that map to the statewide outcome.
Quantitative Reasoning	Quantitative Reasoning	Quantitative Reasoning courses cover areas of Quantitative Foundations and Statistical Inferential Reasoning. Through these courses, students interpret, illustrate, and analyze information in mathematical and statistical forms.

UK Core

NOTE: Please use the UK Core search filter located on the online course catalog page to view current offerings of UK Core courses.

The UK Core – General Education Requirements

The University of Kentucky's general education program – the UK Core – is foundational to a university education at the University of Kentucky. A university education is more than simply learning a set of skills in a specific area in preparation for a job or career. A university education is designed to broaden the students' understanding of themselves, of the world we live in, of their role in our global society, and of the ideals and aspirations that have motivated human thought and action throughout the ages. It must help individuals effectively put into action their acquired knowledge, to provide the bases for critical thinking and problem solving, and to develop life-long learning habits.

The UK Core is composed of the equivalent of 30 credit hours in 10 course areas that address four broad learning outcomes. Depending on choice of major or courses, some students may take more than 30 credit hours to complete the UK Core.

The UK Core Learning Outcomes

The UK Core curriculum is based on a comprehensive set of student learning outcomes that all students are expected to be able to demonstrate upon completion of a baccalaureate degree at the University of Kentucky. All UK Core courses are designed to meet one or more of the following learning outcomes:

I. Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry. [12 credit hours]

Students will be able to identify multiple dimensions of a good question (i.e., interesting, analytical, problematic, complex, important, genuine, researchable); determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; evaluate theses and conclusions in light of credible evidence; explore the ethical implications of differing approaches, methodologies or conclusions; and develop potential solutions to problems based on sound evidence and reasoning. Students will take four 3-credit courses, one in each of the four broad knowledge areas defined above.

II. Students will demonstrate competent written, oral, and visual communication skills both as producers and consumers of information. [6 credit hours]

Students will demonstrate the ability to construct intelligible messages using sound evidence and reasoning that are appropriate for different rhetorical situations (audiences and purposes) and deliver those messages effectively in written, oral, and visual form. Students will also demonstrate the ability to competently critique (analyze, interpret, and evaluate) written, oral, and visual messages conveyed in a variety of communication contexts. Students will take one 3-hour course focusing on the development of effective writing skills, and one 3-hour integrated communications course focusing on oral and visual communication skills, along with continued development of written communication skills.

III. Students will demonstrate an understanding of and ability to employ methods of quantitative reasoning. [6 credit hours]

Students will (a) demonstrate how fundamental elements of mathematical, logical and statistical knowledge are applied to solve real-world problems; and (b) explain the sense in which an important source of uncertainty in many everyday decisions is addressed by statistical science, and appraise the efficacy of statistical arguments that are reported for general consumption. Students will take one 3-hour course on the application of mathematical, logical and statistical methods, and one 3-hour course devoted to a conceptual and practical understanding of statistical inferential reasoning.

IV. Students will demonstrate an understanding of the complexities of citizenship and the process for making informed choices as engaged citizens in a diverse, multilingual world. [6 credit hours]

Students will recognize historical and cultural differences arising from issues such as ethnicity, gender, language, nationality, race, religion, sexuality, and socioeconomic class; students will demonstrate a basic understanding of how these differences influence issues of social justice, both within the U.S. and globally; students will recognize and evaluate the ethical dilemmas, conflicts, and trade-offs involved in personal and collective decision making. Students will take two courses, each with a topical or regional focus. The first course will include critical analysis of diversity issues as they relate to the contemporary United States. The second will be a non-US based course that includes critical analysis of local-to-global dynamics as they relate to the contemporary world. In addition, each course must address at least 2 of these 4 topics: societal and institutional change over time; civic engagement; cross-national/comparative issues; power and resistance.

The Curricular Framework and Relationship to the Learning Outcomes

Students must take one course from each of the areas listed below in order to complete the UK Core. A course taken to satisfy a requirement in one area of the UK Core cannot be used to satisfy a requirement in another area, even if a specific course is present in more than one area (e.g., some courses are designed to meet the learning outcomes in more than one area).

– continued on next page –

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

Course Areas by Learning Outcome	Credit Hours
Learning Outcome I: Intellectual Inquiry	
The Nature of Inquiry in Arts and Creativity	3
The Nature of Inquiry in the Humanities	3
The Nature of Inquiry in the Social Sciences	3
The Nature of Inquiry in the Natural, Physical and Mathematical Sciences	3
Learning Outcome II: Written, Oral and Visual Communication	
Composition and Communication I	3
Composition and Communication II	3
Learning Outcome III: Quantitative Reasoning	
Quantitative Foundations	3
Statistical Inferential Reasoning	3
Learning Outcome IV: Citizenship	
Community, Culture and Citizenship in the USA	3
Global Dynamics	3
UK Core Credit-Hour Total*	**30**

**The UK Core is designed to provide the equivalent of 30 credit hours. Some courses in the UK Core require more than three credits, resulting in more than 30 credits in some cases.*

Please consult your advisor for a complete list of options.

I. Intellectual Inquiry in Arts and Creativity

Courses in this area are hands-on courses that allow students to engage actively with the creative process. Students will define and distinguish different approaches to creativity, demonstrate the ability to critically analyze work produced by other students, and evaluate results of their own creative endeavors. In general education, a focus on creativity adds to the vitality and relevance of learning and will translate into graduates who are better prepared to face the challenges of a dynamic society.

To fulfill the Arts and Creativity requirement, complete **one** of the following:

A-E 120	**Pathways to Creativity in the Visual Arts**
A-H 304	African Art and Its Global Impact
A-S 102	**Two-Dimensional Surface**
A-S 103	**Three-Dimensional Form**
A-S 130	**Drawing**
A-S 200	**Introduction to Digital Art, Space, and Time**
A-S 245	Introduction to Web Design
A-S 270	**Ceramics for Non-Majors**
A-S 280	**Introduction to Photographic Literacy**
A-S 285	**Lens Arts**
A-S 300	**Digital Photography**
A-S 340	Introduction to Graphic Design, Meaning and Image
A-S 380	**Black & White Darkroom Photography**
AAS 168	All That Speak of Jazz: An Intellectual Inquiry Into Jazz and Democracy
BAE 402†	**Biosystems Engineering Design I**
BAE 403†	Biosystems Engineering Design II
CME 455*	**Chemical Engineering Product and Process Design I**
DES 100	**Design in Your World**
EE 101	Creativity and Design in Electrical and Computer Engineering
EGR 101**	**Engineering Exploration I**
EGR 103**	**Engineering Exploration II**
EGR 112**	**Engineering Exploration for Transfer Students**
ENG 107	**Writing Craft: Introduction to Creative Writing**
ENG 130	**Literary Encounters**
ENG 168	All That Speak of Jazz: An Intellectual Inquiry Into Jazz and Democracy
ENG 180	**Great Movies (Subtitle required)**
GEO 109	**Digital Mapping**
HON 252	**Honors in Arts and Creativity (Subtitle required)**
ICT 200	**Information Literacy and Critical Thinking**
IS 200	**Information Literacy and Critical Thinking**
LA 111	**Living on the Right Side of the Brain**
MCL 311	The World of Autobiography
MCL 312	The Art of Adaptation
ME 411	**ME Capstone Design I**
MNG 592	Mine Design Project II
MUS 123	**Beginning Classroom Guitar**
MUS 130	**Performing World Music (Subtitle required)**
MUS 200	Music for Living
MUS 222	**Creativity and Innovation in Rock Music**
PHI 315	**Philosophy and Science Fiction**
PLS 240	**Introduction to Floral Design**
TA 110	**Theatre: An Introduction**
TA 120	**Creativity and the Art of Acting**
TA 150	**Creativity and the Art of Design and Production**
TA 220	Shakespeare Page to Stage
TA 370	Staging History
TAD 140	**Introduction to Dance**
UKC 100	**A&C Inquiry**
WRD 312	**Introduction to Documentary**

† *Students must complete both BAE 402 and BAE 403 to fulfill the Arts and Creativity requirement.*

* *Chemical Engineering students only.*

** *EGR 101/EGR 112 and EGR 103 are paired courses. Students must complete both EGR 101 (or EGR 112) and EGR 103 to earn UK Core credit. In addition, EGR 102 is a prerequisite for EGR 103.*

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

II. Intellectual Inquiry in the Humanities

These courses develop students' skills in *interpretation* and *analysis* of creations of the human intellect such as art and literature (including folklore, popular culture, film and digital media), philosophical and religious contemplation and argumentation, language systems, and historical narratives. In these courses, students gain the ability not only to analyze the works themselves but to *evaluate* competing interpretations of such works.

To fulfill the Humanities requirement, complete **one** of the following:

A-H 101	**Introduction to Visual Studies**
A-H 105	**World Art Before 1400**
A-H 106	**Renaissance to Modern Art**
A-H 334	Reframing Renaissance Art
AAS 253	**History of Pre-Colonial Africa**
AAS 254	History of Colonial and Post-Colonial Africa
AAS 264	**Introduction to Black Writers**
AIS 228	**Islamic Civilization**
AIS 320	Modern Arabic Literature and Film in Translation
AIS 345	Islamic Mysticism
ARC 314*	**History and Theory III: 20th Century and Contemporary Architecture**
CHI 330	Introduction to Chinese Culture, Pre-Modern to 1840
CHI 331	**Introduction to Chinese Culture, 1840 to Present**
CLA 135	**Greek and Roman Mythology**
CLA 190	Introduction to the New Testament
CLA 191	**Christianity, Culture, and Society: A Historical Introduction**
CLA 229	**The Ancient Near East and Greece to the Death of Alexander the Great**
CLA 230	The Hellenistic World and Rome to the Death of Constantine
CPH 309	Health, History, and Human Diversity
EGR 201	Literature, Technology, and Culture
ENG 142	**Global Shakespeare**
ENG 191	**Literature and the Arts of Citizenship**
ENG 209	The Structure and Use of English
ENG 230	**Introduction to Literature (Subtitle required)**
ENG 260	**Introduction to Black Writers**
ENG 280	**Introduction to Film**
ENG 290	**Introduction to Women's Literature**
EPE 350	Town and Gown in Fact and Fiction: Campus and Community as Local History
FR 103	**French Cinema**
FR 205	**The French Graphic Novel**
FR 225	French Film Noir
GER 103	Fairy Tales in European Context
GER 305	German Film Today
GWS 201	**Gender and Popular Culture**
GWS 309	Health, History, and Human Diversity
HIS 104	**A History of Europe Through the Mid-Seventeenth Century**
HIS 105	A History of Europe from the Mid-Seventeenth Century to the Present
HIS 108	**History of the United States Through 1876**
HIS 109	**History of the United States Since 1877**
HIS 112	**The Making of Modern Kentucky**
HIS 119	War and Society, 1350-1914
HIS 121	**War and Society, 1914-1945**
HIS 130	Drugs and Alcohol in Western Civilization, 1492 to the Present
HIS 191	**A History of World Religions (Subtitle required)**
HIS 202	**History of the British People to the Restoration**
HIS 203	History of the British People Since the Restoration
HIS 207	History of Modern Latin America, 1810 to Present
HIS 229	**The Ancient Near East and Greece to the Death of Alexander the Great**
HIS 230	The Hellenistic World and Rome to the Death of Constantine
HIS 253	**History of Pre-Colonial Africa**
HIS 254	History of Colonial and Post-Colonial Africa
HIS 296	East Asia Since 1600
HJS 110	Introduction to the Old Testament/Hebrew Bible
HON 151	**Honors in Humanities (Subtitle required)**
ID 161	**History and Theory of Interior Environments I**
ID 162	History and Theory of Interior Environments II
ITA 263	Studies in Italian Culture (Subtitle required)
LIN 209	The Structure and Use of English
MCL 100	**The World of Language**
MCL 135	**Vampires: Evolution of a Sexy Monster**
MCL 200	**Global Literacy**
MCL 270	Introduction to Folklore and Mythology
MCL 343	**Global Horror**
MCL 360	Catastrophes and Calamities in the Greco-Roman World and Afterwards
MUS 100	**Introduction to Music**
PHI 100	**Introduction to Philosophy: Knowledge and Reality**
PHI 260	**History of Philosophy I: From Greek Beginnings to the Middle Ages**
PHI 270	**History of Philosophy II: From the Renaissance to the Present Era**
PHI 310	**Philosophy of Human Nature**
PHI 317	**Existentialist Thought and Literature**
PHI 380	**Death, Dying and the Quality of Life**
RUS 275	Russian Film
RUS 371	**The Russian Cultural Imagination: 900-1900**
RUS 372	**Experiments in Life and Art: Russian Culture 1900-Present**
SPA 262	Hispanic Literatures in Translation (Subtitle required)
SPA 330	Spanish and Globalization
SPA 371	**Latin American Cinema (Subtitle required)**
SPA 372	Spanish Cinema (Subtitle required)
TA 385	**World Theatre I**
TA 386	World Theatre II
TA 388	History of the American Musical
UKC 110	**HUM Inquiry: Intro to Collegiate Life**
WRD 210	**Social Media: Theory, Culture, Politics, Practice**
WRD 320	**Rhetorical Theory and History**

* *Architecture students only.*

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

III. Intellectual Inquiry in the Social Sciences

These courses promote an understanding of the relationships between individuals and society and how scholars have come to understand these relationships using conceptual models and processes of inquiry. Through a discipline-based study of social problems or themes, students will learn to critically evaluate the variety of social situations with which they may be confronted in their everyday lives.

To fulfill the Social Sciences Requirement, complete **one** of the following:

AIS 430	Islam in America
ANT 101	**What Makes Us Human? Intro to Anthropology**
ANT 102	**Archaeology: Mysteries and Controversies**
ANT 103	Sports, Culture, and Society
ANT 335	**Religion in Everyday Life**
ANT 339	Human Rights in Global Perspective
CLD 102*	The Dynamics of Rural Social Life
COM 101	**Introduction to Communications**
COM 311	**Taking Control of Your Health: Patient-Provider Communication**
COM 313	Interpersonal Communication in Close Relationships
COM 314	**The Dark Side of Interpersonal Communication and Relationships**
COM 317	Communication in Family and Marital Relationships
CPH 201	**Introduction to Public Health**
CPH 202	Public Health Through Popular Film
CPH 203	**Sexual Health**
ECO 101	**Contemporary Economic Issues**
EGR 120	**Technology: Blessing or Curse**
EPE 174	Theories of College Student Success
EPE 374	Theories of College Student Development and Mentoring
GEO 172	**Human Geography**
GWS 200	**Sex and Power**
HON 251	**Honors in Social Sciences (Subtitle required)**
HP 101	**Historic Preservation**
ICT 150	**Experience ICT**
MCL 135	**Vampires: Evolution of a Sexy Monster**
MCL 270	Introduction to Folklore and Mythology
PCE 201	**Introduction to Peace Studies**
PS 230	**Introduction to International Relations**
PSY 100	**Introduction to Psychology**
RUS 370	Russian Folklore (in English)
SOC 101*	**Introduction to Sociology**
UKC 130	**SS Inquiry**
UKC 131	**SS Inquiry**
UKC 330	**SS Inquiry UD**

* *Students may not receive credit for both SOC 101 and CLD 102.*

IV. Intellectual Inquiry in the Natural, Physical and Mathematical Sciences

These courses engage students in the fundamental processes of science through the exploration of an area in science. Students will be expected to use their knowledge of scientific concepts to formulate predictions, collect and analyze data, and construct explanations for the questions posed.

To fulfill the Natural, Physical and Mathematical Sciences requirement, complete **one** of the following:

ABT 120	Genetics and Society
ANT 230	**Introduction to Biological Anthropology**
ARC 333	Environmental Controls II
AST 191	**The Solar System**
BIO 102	**Human Ecology**
BIO 103	**Basic Ideas of Biology**
CHE 101	**Molecular Science for Citizens**
CHE 105†	**General College Chemistry I**
CHE 109*	**General Chemistry I**
CHE 110*	**General Chemistry II**
CHE 111†	**Laboratory to Accompany General Chemistry I**
CPH 310	**Disease Detectives: Epidemiology in Action**
EE 167	Fundamentals of Nanotechnology and Applications in Renewable Energy
EES 110	**Endangered Planet: An Introduction to Environmental Geology**
EES 120	Sustainable Planet: The Geology of Natural Resources
EES 150	**Earthquakes and Volcanoes**
EES 170	Blue Planet: Introduction to Oceanography
EES 180	**Geology of the National Parks**
ENT 110	**Insect Biology**
FOR 100	**Forests and Forestry**
GEO 130	**Earth's Physical Environment**
GEO 133	Science and Policy of Natural Hazards
GEO 135	**Global Climate Change**
HON 152	**Honors in Natural, Physical, and Mathematical Sciences (Subtitle required)**
MUS 140	**Acoustics of Music**
PHY 120	How Things Work
PHY 130	Science and Technology for the Future
PHY 140	**Quantum Theory for Everyone**
PHY 211	**General Physics**
PHY 231**	**General University Physics**
PHY 241**	**General University Physics Laboratory**
PLS 104	**Plants, Soils, and People: A Science Perspective**
UKC 320	**NS Inquiry UD**

† *CHE 105 and 111 are paired courses. To earn UK Core credit, both courses must be completed. CHE 111 may be taken concurrently with CHE 105 or after CHE 105 has been completed. Students must sign up for them separately.*

* *CHE 109 and CHE 110 are equivalent to CHE 105. To earn UK Core credit, students must complete CHE 109, CHE 110 and CHE 111. Students must sign up for them separately.*

** *PHY 231 and 241 are paired courses. To earn UK Core credit, both PHY 231 and PHY 241 must be completed. They may be taken in either order and students must sign up for them separately.*

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

V. Composition and Communication I

In this course, students are introduced to the process of writing, speaking, and visually representing their own ideas and the ideas of others; they also practice basic interpersonal communication skills and the ability to communicate with multiple audiences.

To fulfill the Composition and Communication I requirement, complete **one** of the following:

- **CIS 110 Composition and Communication I**
- **CIS 112 Accelerated Composition and Communication II (CIS)**
- **WRD 110 Composition and Communication I**
- ICT 114 Composition and Communication in the Digital Age I
- **WRD 112 Accelerated Composition and Communication II (WRD)**

Placement in CIS/WRD 112 – *Students who have a score of **32 or above** on the English component of the **ACT**; a score of **720 or above** on **SAT I Verbal**; or a standard score of **4** or **5** on the **AP English Language Exam** receive placement in **CIS/WRD 112**. No credit for **CIS/WRD 110/111** is awarded.*

VI. Composition and Communication II

In this course, students research public controversies and work in teams to analyze and argue for a solution to these controversies in oral, written, and visual/digital forms for multiple audiences.

To fulfill the Composition and Communication II requirement, complete **one** of the following:

- **CIS 111 Composition and Communication II**
- **CIS 112 Accelerated Composition and Communication II (CIS)**
- CIS 184 Communicating Arguments
- **WRD 111 Composition and Communication II**
- **WRD 112 Accelerated Composition and Communication II (WRD)**

Placement in CIS/WRD 112 – *Students who have a score of **32 or above** on the English component of the **ACT**; a score of **720 or above** on **SAT I Verbal**; or a standard score of **4** or **5** on the **AP English Language Exam** receive placement in **CIS/WRD 112**. No credit for **CIS/WRD 110/111** is awarded.*

VII. Quantitative Foundations

These courses are concerned with the application of mathematical concepts and skills to solve real-world problems. In order to perform effectively as professionals and citizens, students must become competent in reading and using quantitative data, in understanding quantitative evidence and in applying basic quantitative skills to the solution of real-life problems.

NOTE: Students must have demonstrated basic proficiency in math skills as determined by a minimum Math ACT of 19 or the appropriate math placement test to take these courses.

To fulfill the Quantitative Foundations requirement, complete **one** of the following:

- CS 261 Social Networks: Methods and Tools
- EES 151 Quantitative Planet
- EES 155 Earthquakes and Quantitative Reasoning
- EES 185 Quantifying the Bluegrass Water Supply
- **FOR 200 Basics of Geospatial Technology**
- **MA 109 College Algebra**
- **MA 111 Introduction to Contemporary Mathematics**
- **MA 113 Calculus I**
- **MA 123 Elementary Calculus and Its Applications**
- **MA 137 Calculus I With Life Science Applications**
- **PHI 120 The Art of Thinking: An Introduction to Logic**

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

VIII. Statistical Inferential Reasoning

These courses will encourage students to evaluate claims based on statistical principles by providing an understanding of the conceptual and practical applications of statistical reasoning and thinking. Students will receive an introduction to the science of statistics, and while students will be expected to reason with statistical ideas and make sense of statistical information, computations are not the focus.

To fulfill the Statistical Inferential Reasoning requirement, complete **one** of the following:

ANT 360	Statistics in Anthropology
BAE 202	Statistical Inferences for Biosystems Engineering
BST 230	**Statistical Thinking in Public Health**
EDP 557	**Gathering, Analyzing, and Using Educational Data**
EPE 557	**Gathering, Analyzing, and Using Educational Data**
FOR 250	**Statistics and Measurements I**
MNG 335	**Introduction to Mine Systems Analysis**
PSY 215*	**Experimental Psychology**
PSY 216*	**Applications of Statistics in Psychology**
SOC 303	**Quantitative Sociological Analysis**
STA 210	**Making Sense of Uncertainty: An Introduction to Statistical Reasoning**
STA 296	**Statistical Methods and Motivations**
STA 381	**Engineering Statistics – A Conceptual Approach**

** PSY 215 and 216 are paired courses and are restricted to Psychology majors and minors. To earn UK Core credit, both PSY 215 and PSY 216 must be completed. They may be taken in either order and students must sign up for them separately.*

IX. Community, Culture and Citizenship in the USA

These courses promote a student's understanding of historical, societal, and cultural differences, such as those arising from race, ethnicity, gender, sexuality, language, nationality, religion, political and ethical perspectives, and socioeconomic class; engage students in grappling with conflicts, compromises, and/or ethical dilemmas stemming from the complex and diverse cultural contexts of US communities; and foster effective and responsible participation in a diverse community or society in the United States.

To fulfill the Community, Culture and Citizenship in the USA requirement, complete **one** of the following:

A-H 360	**Visual Culture of Politics**
AAS 168	All That Speak of Jazz: An Intellectual Inquiry Into Jazz and Democracy
AAS 200	**Introduction to African-American Studies**
AAS 235	**Inequalities in Society**
AAS 261	African American History 1865-Present
AIS 430	Islam in America
ANT 221	**Native People of North America**
ANT 330	North American Cultures
APP 200	**Introduction to Appalachian Studies**
CLD 360	Environmental Sociology
COM 312	Learning Intercultural Communication Through Media and Film
COM 315	**Understanding Workplace Communication in a Diverse U.S. Society**
CPH 309	Health, History, and Human Diversity
ENG 168	All That Speak of Jazz: An Intellectual Inquiry Into Jazz and Democracy
ENG 191	**Literature and the Arts of Citizenship**
EPE 301	**Education in American Culture**
GEN 100*	**Issues in Agriculture, Food and Environment**
GEO 220	**U.S. Cities**
GEO 221	**Immigrant America: A Geographic Perspective**
GEO 320	Geography of the United States and Canada
GRN 250	**Aging in Today's World**
GWS 301	**Crossroads (Subtitle required)**
GWS 309	Health, History, and Human Diversity
HIS 108	**History of the United States Through 1876**
HIS 109	**History of the United States Since 1877**
HIS 112	**The Making of Modern Kentucky**
HIS 261	African American History 1865-Present
LIN 331	Language in U.S. Society
MCL 335	Democracy – Ancient and American
PHI 130	**Introduction to Philosophy: Morality and Society**
PHI 205	**Food Ethics**
PHI 335	**The Individual and Society**
PHI 340	**Introduction to Feminism and Philosophy**
PHI 361	Biology and Society (Subtitle required)
PS 101	**American Government**
PSY 320	**Introduction to Forensics: Psychology and Legal Issues**
SOC 235	**Inequalities in Society**
SOC 360	Environmental Sociology
SPA 208	U.S. Latino Culture and Politics
SW 325	**Social Justice Foundations**
TA 286	Social Action Theatre
UKC 180	**US Citizen: Civil Rights/Equal Rights**
WRD 222	Current Events and Public Engagement: U.S. Citizens, Global Citizens
WRD 422	Public Advocacy (Subtitle required)

** GEN 100 is for College of Agriculture, Food and Environment students only.*

NOTE: UK Core courses offered in fall 2018 are listed in blue type.

X. Global Dynamics

These courses equip students to participate in a diverse, multiethnic, multilingual world community. Toward this end, students consider issues of equality, ethical dilemmas, global trends, social change, and civic engagement in the context of local cultures outside the U.S.

To fulfill the Global Dynamics requirement, complete **one** of the following:

A-H 304	African Art and Its Global Impact
A-H 311	**The Arts as Soft Power: The Japanese Tea Ceremony**
AAS 100	**Introduction to African Studies**
AAS 253	**History of Pre-Colonial Africa**
AAS 254	History of Colonial and Post-Colonial Africa
ANT 160	**Cultural Diversity in the Modern World**
ANT 222	**Middle East Cultures**
ANT 225	**Culture, Environment and Global Issues**
ANT 241	Origins of Old World Civilization
ANT 242	**Origins of New World Civilization**
ANT 311	Anthropology of Globalization
ANT 321	Introduction to Japanese Culture, Meiji (1868) to Present
ANT 329	Cultures and Societies of Eurasia and Eastern Europe: Socialism and Post-Socialist Change
ARC 315	History and Theory of Architecture IV: Urban Forms
CHI 331	**Introduction to Chinese Culture, 1840 to Present**
CLD 380	Globalization: A Cross-Cultural Perspective
COM 390	Communication Education Abroad (Subtitle required)
EGR 240	**Global Energy Issues**
ENG 142	**Global Shakespeare**
ENG 171	Global Literature in English
FOR 435	Conservation Biology
GEO 160	**Lands and Peoples of the Non-Western World**
GEO 161	Global Inequalities
GEO 162	**Introduction to Global Environmental Issues**
GEO 163	Global Conflicts
GEO 164	iWorlds: Global Information Geographies
GEO 222	**Cities of the World**
GEO 255	Geography of the Global Economy
GEO 260	Geographies of Development in the Global South
GEO 261	**Global Dynamics of Health and Disease**
GEO 316	Environment and Development
GER 305	German Film Today
GER 342	War, Peace, and Terror in Germany and Europe
GER 361	German Cinema
GWS 250	**Social Movements**
GWS 302	**Gender Across the World (Subtitle required)**
HIS 100	**Introduction to African Studies**
HIS 104	**A History of Europe Through the Mid-Seventeenth Century**
HIS 105	A History of Europe From the Mid-Seventeenth Century to the Present
HIS 121	**War and Society, 1914-1945**
HIS 122	War and Society Since 1945
HIS 191	**A History of World Religions (Subtitle required)**
HIS 202	**History of the British People to the Restoration**
HIS 203	History of the British People Since the Restoration
HIS 206	**History of Colonial Latin America, 1492-1810**
HIS 207	History of Modern Latin America, 1810 to Present
HIS 208	History of the Atlantic World
HIS 253	**History of Pre-Colonial Africa**
HIS 254	History of Colonial and Post-Colonial Africa
HIS 296	East Asia Since 1600
HIS 357	Japan at War, 1850 to the Present
HON 352	Study and Travel Abroad (Subtitle required)
ICT 205	**Issues in Information and Communication Technology Policy**
INT 200	**Introduction to International Studies**
ITA 335	Topics in Italian Cinema (Subtitle required)
JPN 320	**Introduction to Japanese Culture, Pre-Modern to 1868**
JPN 321	Introduction to Japanese Culture, Meiji (1868) to Present
JPN 351	The Japanese Experience of the Twentieth Century
LAS 201	**Introduction to Latin America**
MAT 247	**Dress and Culture**
MCL 324	The City in the Twentieth-Century: Tokyo, Shanghai, Paris
MCL 343	**Global Horror**
MCL 360	Catastrophes and Calamities in the Greco-Roman World and Afterwards
MUS 330	**Music in the World (Subtitle required)**
MUS 335	Exploring World Music and Ethnomusicology
PCE 410	Peace Studies Capstone Seminar
PHI 343	**Asian Philosophy**
PLS 103	**Plants, Soils, and People: A Global Perspective**
PPS 104	International Healthcare Experience
PS 210	**Introduction to Comparative Politics**
RUS 275	Russian Film
RUS 370	Russian Folklore (in English)
RUS 371	**The Russian Cultural Imagination: 900-1900**
RUS 372	**Experiments in Life and Art: Russian Culture 1900-Present**
SAG 201	Cultural Perspectives on Sustainability
SOC 180	Global Societies in Comparative Perspective
SOC 380	**Globalization: A Cross-Cultural Perspective**
SPA 111	The Hispanic Caribbean
UKC 190	**Global Dyn: Global Citizenship**
WRD 420	Rhetorical Traditions (Subtitle required)

Foreign Language Requirement

Foreign language is no longer explicitly required as part of the new UK General Education, the UK Core. However, foreign language proficiency is still an expectation for students who enter UK, and is still considered to be an important part of the students' educational background.

Any first-time freshman or transfer student must demonstrate that they have completed two high school credits in a single foreign language, or two semesters at the postsecondary level. A student who has not completed the high school foreign language requirement will be required to take a two-semester sequence in one foreign language at the University of Kentucky prior to graduation.

UK Core Intellectual Inquiry in the Arts and Creativity Rubric

UK Core Learning Outcome 1: *Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry.*

Outcomes and Assessment Framework: Students will: (A) be able to identify multiple dimensions of a good question; determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; (B) explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; (C) evaluate theses and conclusions in light of credible evidence; (D) explore the ethical implications of differing approaches, methodologies or conclusions; (E) and develop potential solutions to problems based on sound evidence and reasoning.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Identify multiple dimensions of a good question *Define and distinguish approaches to creativity.*	Identifies, defines and distinguishes an approach to creativity.	Identifies an approach to creativity but does not fully define or distinguish it.	Acknowledges but does not specifically identify, define or distinguish an approach to creativity.
Theses and conclusions *Demonstrates the application of logic, laws, constraints of the area of study and the evaluation and refinement of the results of own creative endeavors*	Critically evaluates the issues involved in addressing one's own work or implications of differing approaches; clearly articulates an argument and cites appropriate evidence; identifies the actual or potential impact of different approaches.	Identifies issues involved in addressing one's own work or implications of differing approaches; clearly states a position, and supports assertions with limited evidence.	Refers to some reasons why evaluation of one's own work or the implications of differing approaches is important but does not support evaluation with evidence.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Implications *Explore the implications of differing approaches, methodologies or conclusions.*	Clearly identifies one or more implications; clearly and fully articulates an argument and cites appropriate evidence.	Identifies one or more implications involved in the creative process or product and supports assertions with limited evidence.	Refers to the existence of implications but does not identify them or support that evaluation with evidence.
Develop potential solutions to problems based on sound evidence and reasoning *Engage actively in the creation of an object, installation, presentation, performance in a way that demonstrates an understanding of the creative process*	The solution incorporates a sophisticated use of at least two of the following: demonstrates skills and competency in a discipline or domain (may include novel materials, breaking established rules of practice, etc); employs ways of thinking that are new to the student; crosses boundaries in that it employs one or more approaches to create an insightful comparison; demonstrates thoughtful evaluation and revision.	The solution incorporates at least two of the following: applies basic skills in a discipline or domain (materials, rules of practice, etc); experiments with ways of thinking that are new to the student; acknowledges divergent approaches in a limited way.	The solution incorporates at least one of the following: attempts basic skills a in a discipline or domain (materials, rules of practice, etc); expresses an idea, concept, or format; acknowledges contradictions.

UK Core Intellectual Inquiry in the Humanities Rubric

UK Core Learning Outcome 1: *Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry.*

Outcomes and Assessment Framework: Students will: (A) be able to identify multiple dimensions of a good question; determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; (B) explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; (C) evaluate theses and conclusions in light of credible evidence; (D) explore the ethical implications of differing approaches, methodologies or conclusions; and (E) develop potential solutions to problems based on sound evidence and reasoning.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Ability to identify multiple dimensions of a good question	Demonstrates thorough intellectual inquiry and fine discrimination in analysis or critical evaluation of texts and/or arguments. Demonstrates an understanding of the complexity of the question or problem under consideration.	Demonstrates intellectual inquiry in analysis or critical evaluation of texts and/or arguments. Understands partially the complexity of the question or problem under consideration.	To a very limited extent, incorporates inquiry in analysis or critical evaluation of texts and/or arguments. Does not understand the complexity of the question or problem under consideration at all.
Ability to explore multiple and complex answers to questions, issues or problems within the Humanities	Skillfully explores and evaluates the complexity of key questions, problems, and arguments in relation to texts or narratives. Explores different points of view on an argument or question. Written with fluency and avoids over-simplification.	Demonstrates complexity of key questions, problems, and arguments in relation to texts or narratives, but misses key points. Explores at least one point of view. Some problems with writing.	Does not explore the complexity of key questions, problems, and arguments in relation to texts or narratives. Serious problems with writing.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Ability to evaluate theses and conclusions in light of credible evidence	Using appropriate evidence and appropriate disciplinary literacy, critically evaluates claims, arguments and conclusions pertaining to the subject and texts under consideration. Well-argued, and (where applicable) reference sources used.	Using some evidence and some appropriate disciplinary literacy, evaluates some claims, arguments and conclusions pertaining to the subject and texts under consideration. Some problems with argumentation and/or use of reference sources.	Using the minimum of evidence, tries to evaluate some claims, arguments and/or conclusions. Minimum disciplinary literacy. Major problems with argumentation and references sources.
Ability to explore the implications of differing approaches, methodologies or conclusions	Critically evaluates texts/arguments by using at least one approach, methodology, or interpretive model. Shows awareness of other competing interpretations and of their possible implications.	Evaluates texts/arguments by using at least one approach or interpretive model, but there are problems with argumentation/analysis. Does not recognize other competing interpretations and implications.	Attempts to evaluate by using at least one approach, but there are serious problems with argumentation/analysis. Demonstrates no awareness of other interpretations.
Develop potential solutions to problems based on sound evidence and reasoning	In the course of written analysis of a text or texts, proposes coherent answers to problems or questions, using clear, logical argumentation supported by solid evidence, such as illustrations, examples and/or quotations	In the course of written analysis of a text or texts, proposes answers to problems or questions, but there are flaws in the argumentation, and gaps in the evidence	Attempts to offer written analysis of a text or texts, but does not propose any answers to problems or questions. There are serious flaws in the argumentation, and major gaps in the evidence.

UK Core Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences

UK Core Learning Outcome 1: *Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry.*

Outcomes and Assessment Framework: Students will: (A) be able to identify multiple dimensions of a good question; determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; (B) explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; (C) evaluate theses and conclusions in light of credible evidence; (D) explore the ethical implications of differing approaches, methodologies or conclusions; (E) and develop potential solutions to problems based on sound evidence and reasoning.

Specific Learning Outcomes for Inquiry in the Natural, Physical, and Mathematical Sciences

By the end of the course, students should be able to:

1. Describe methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.
2. Explain fundamental principles in a branch of science.
3. Apply fundamental principles to interpret and make predictions in a branch of science.
4. Demonstrate an understanding of at least one scientific discovery that changed the way scientists understand the world.
5. Give examples of how science interacts with society.
6. Conduct a hands-on project using scientific methods to include design, data collection, analysis, summary of the results, conclusions, alternative approaches, and future studies.
7. Recognize when information is needed and demonstrate the ability to find, evaluate and use effectively sources of scientific information.

* A required student product (paper, laboratory report, presentation, etc.) based on the hands-on project. This requirement is the curriculum-embedded performance based assessable product.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Explore multiple and complex answers to questions/issues within the natural, physical and/or mathematical sciences by identifying the dimensions of a good question	The question is described clearly, completely, fully and in great detail. The question is answerable by experiment or observation. The experimental design is appropriate and described in detail.	The question is described but some detail is missing. The question is answerable by experiment or observation but lacks clarity. The experimental design is appropriate but lacks detail.	The question is inadequate or incompletely described. The question is not answerable by experiment or observation. The experimental design is missing.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Explore multiple and complex answers to questions/issues within the natural, physical and/or mathematical sciences by evaluating theses and conclusions in light of credible evidence; and judging the quality of information as informed by rigorously developed evidence	Provides a well-developed evaluation and analysis of the data and questions its accuracy, relevance, and completeness. Justifies key results and procedures, explains assumptions and reasons.	Evaluation and analysis of data contains minor errors/omissions. Justifies some results or procedures, explains reasons.	Evaluation and analysis of data contains major errors/omissions. No justification of results.
Explore multiple and complex answers to questions/issues within the natural, physical and/or mathematical sciences by exploring alternative approaches and/or future study of the question	Critically evaluates major alternative points of view/ approaches. (and/or) Provides a detailed description of future studies. Makes suggestions related to the improvement of the existing experimental design.	Offers evaluations of obvious alternative points of view/approaches. (and/or) Makes suggestions for future research studies, which have minor flaws. Makes some suggestions for improvement of the existing experimental design, which are incomplete or have minor flaws.	Superficially evaluates obvious alternative points of view/ approaches. (and/or) Does not make suggestions for future research studies, or for the redesigning of the existing procedure.

UK Core Intellectual Inquiry in the Social Science Rubric

UK Core Learning Outcome 1: *Students will demonstrate an understanding of and ability to employ the processes of intellectual inquiry.*

Outcomes and Assessment Framework: Students will: (A) be able to identify multiple dimensions of a good question; determine when additional information is needed, find credible information efficiently using a variety of reference sources, and judge the quality of information as informed by rigorously developed evidence; (B) explore multiple and complex answers to questions/issues problems within and across the four broad knowledge areas: arts and creativity, humanities, social and behavioral sciences, and natural/ physical/mathematical sciences; (C) evaluate theses and conclusions in light of credible evidence; (D) explore the ethical implications of differing approaches, methodologies or conclusions; (E) and develop potential solutions to problems based on sound evidence and reasoning.

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Identify multiple dimensions of a good question *Define and distinguish approaches investigating social questions/issues/ problems*	Demonstrates a thorough understanding of conceptual approaches to investigating social questions/ issues/ problems in an evaluation or critical analysis	Identifies conceptual approaches to investigating social questions/ issues/ problems, but does not evaluate or critically analyze them	Acknowledges conceptual approaches to investigating social questions/issues/ problems exist but does not identify, critically analyze or evaluate them
Multiple and complex answers to questions/ issues/ problems	Applies a thorough understanding of multiple and complex answers to *social questions/ issues/ problems*; demonstrates how conceptions of the issue under discussion which are constructed from multiple perspectives	Identifies multiple and complex answers to *social questions/ issues/ problems*; exhibits a basic understanding of the issue under discussion	Does not correctly identify multiple and complex answers to *social questions/ issues/ problems*; exhibits a shallow or flawed understanding of the issue under discussion

	Exceeds Expectations	Meets Expectations	Does Not Meet Expectations
Theses and conclusions *Explore empirical evidence or conclusions drawn from empirical evidence*	Critically evaluates the methodological issues involved in generating data and coming to conclusions about *social questions/ issues/ problems*; clearly articulates an argument and cites appropriate evidence; identifies the actual or potential impact of different approaches	Identifies methodological issues involved in generating data and coming to conclusions about *social questions/ issues/ problems*; clearly states a position, and supports assertions with some evidence	Refers to some methodological issues involved in generating data and coming to conclusions about the *social questions/ issues/ problems*; states a position is important but does not support evaluation with evidence
Ability to explore the implications of differing approaches, methodologies or conclusions	Critically evaluates different approaches, methodologies, or interpretive models, fully demonstrating awareness of their implications on *social questions/ issues/ problems*	Evaluates, in a limited way, different approaches, methodologies, or interpretive models, acknowledging awareness of ethical implications on *social questions/ issues/ problems*	Identifies different approaches, methodologies, or interpretive models, but shows no awareness of the implications of these on *social questions/ issues/ problems*
Develop potential solutions to problems based on sound evidence and reasoning *Engage actively in the examination of a social questions/ issues/ problem in a way that demonstrates an understanding of the inquiry process*	Proposes solutions to *social questions/ issues/ problems* that demonstrates understanding of the generation/analysis of data and applies findings to potential solutions	Proposes solutions to *social questions/ issues/ problems* that demonstrates minimum understanding of the generation/analysis of data and how findings might be applied to potential solutions	Proposes solutions to *social questions/ issues/ problems* but demonstrates no understanding of the generation/analysis of data and how findings might be applied to potential solutions

Appendix 4.5

QUANTITATIVE LITERACY VALUE RUBRIC

for more information, please contact value@aacu.org

The VALUE rubrics were developed by teams of faculty experts representing colleges and universities across the United States through a process that examined many existing campus rubrics and related documents for each learning outcome and incorporated additional feedback from faculty. The rubrics articulate fundamental criteria for each learning outcome, with performance descriptors demonstrating progressively more sophisticated levels of attainment. The rubrics are intended for institutional-level use in evaluating and discussing student learning, not for grading. The core expectations articulated in all 15 of the VALUE rubrics can and should be translated into the language of individual campuses, disciplines, and even courses. The utility of the VALUE rubrics is to position learning at all undergraduate levels within a basic framework of expectations such that evidence of learning can by shared nationally through a common dialog and understanding of student success.

Definition

Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Quantitative Literacy Across the Disciplines

Current trends in general education reform demonstrate that faculty are recognizing the steadily growing importance of Quantitative Literacy (QL) in an increasingly quantitative and data-dense world. AAC&U's recent survey showed that concerns about QL skills are shared by employers, who recognize that many of today's students will need a wide range of high level quantitative skills to complete their work responsibilities. Virtually all of today's students, regardless of career choice, will need basic QL skills such as the ability to draw information from charts, graphs, and geometric figures, and the ability to accurately complete straightforward estimations and calculations.

Preliminary efforts to find student work products which demonstrate QL skills proved a challenge in this rubric creation process. It's possible to find pages of mathematical problems, but what those problem sets don't demonstrate is whether the student was able to think about and understand the meaning of her work. It's possible to find research papers that include quantitative information, but those papers often don't provide evidence that allows the evaluator to see how much of the thinking was done by the original source (often carefully cited in the paper) and how much was done by the student herself, or whether conclusions drawn from analysis of the source material are even accurate.

Given widespread agreement about the importance of QL, it becomes incumbent on faculty to develop new kinds of assignments which give students substantive, contextualized experience in using such skills as analyzing quantitative information, representing quantitative information in appropriate forms, completing calculations to answer meaningful questions, making judgments based on quantitative data and communicating the results of that work for various purposes and audiences. As students gain experience with those skills, faculty must develop assignments that require students to create work products which reveal their thought processes and demonstrate the range of their QL skills.

This rubric provides for faculty a definition for QL and a rubric describing four levels of QL achievement which might be observed in work products within work samples or collections of work. Members of AAC&U's rubric development team for QL hope that these materials will aid in the assessment of QL – but, equally important, we hope that they will help institutions and individuals in the effort to more thoroughly embed QL across the curriculum of colleges and universities.

Framing Language

This rubric has been designed for the evaluation of work that addresses quantitative literacy (QL) in a substantive way. QL is not just computation, not just the citing of someone else's data. QL is a habit of mind, a way of thinking about the world that relies on data and on the mathematical analysis of data to make connections and draw conclusions. Teaching QL requires us to design assignments that address authentic, data-based problems. Such assignments may call for the traditional written paper, but we can imagine other alternatives: a video of a PowerPoint presentation, perhaps, or a well designed series of web pages. In any case, a successful demonstration of QL will place the mathematical work in the context of a full and robust discussion of the underlying issues addressed by the assignment.

Finally, QL skills can be applied to a wide array of problems of varying difficulty, confounding the use of this rubric. For example, the same student might demonstrate high levels of QL achievement when working on a simplistic problem and low levels of QL achievement when working on a very complex problem. Thus, to accurately assess a students QL achievement it may be necessary to measure QL achievement within the context of problem complexity, much as is done in diving competitions where two scores are given, one for the difficulty of the dive, and the other for the skill in accomplishing the dive. In this context, that would mean giving one score for the complexity of the problem and another score for the QL achievement in solving the problem.

QUANTITATIVE LITERACY VALUE RUBRIC

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Association of American Colleges and Universities

Definition

Quantitative Literacy (QL) – also known as Numeracy or Quantitative Reasoning (QR) – is a "habit of mind," competency, and comfort in working with numerical data. Individuals with strong QL skills possess the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. They understand and can create sophisticated arguments supported by quantitative evidence and they can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

Evaluators are encouraged to assign a zero to any work sample or collection of work that does not meet benchmark (cell one) level performance.

	Capstone 4	**Milestones** 3	 2	**Benchmark** 1
Interpretation *Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)*	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. *For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.*	Provides accurate explanations of information presented in mathematical forms. *For instance, accurately explains the trend data shown in a graph.*	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. *For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.*	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. *For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.*
Representation *Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)*	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis *Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis*	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work.
Assumptions *Ability to make and evaluate important assumptions in estimation, modeling, and data analysis*	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.
Communication *Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)*	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)

Appendix 5

Table 3. Frequency Distributions of Student Scores for Intellectual Inquiry Outcomes

Intellectual Inquiry	Does Not Meet N (%)	Meets N (%)	Exceeds N (%)	Total Meets/ Exceeds N (%)
Arts & Creativity				
1. Identify multiple dimensions of a good question	7 (18)	18 (45)	15 (38)	33 (82)
2. Theses and conclusions	9 (22)	17 (42)	14 (35)	31 (78)
3. Implications	9 (22)	17 (42)	14 (35)	31 (78)
4. Develop potential solutions to problems based on sound evidence and reasoning	8 (20)	20 (50)	12 (30)	32 (80)
Humanities				
1. Identify multiple dimensions of a good question	38 (40)	48 (50)	9 (9)	57 (60)
2. Explore multiple and complex answers to questions, issues, or problems within Humanities	44 (46)	42 (44)	9 (9)	51 (54)
3. Theses and conclusions	36 (38)	49 (52)	10 (10)	59 (62)
4. Implications	36 (38)	53 (56)	6 (6)	59 (62)
5. Develop potential solutions to problems based on sound evidence and reasoning	42 (44)	46 (48)	7 (7)	53 (56)
Natural/Physical/Mathematical Sciences				
1. Identify the dimensions of a good question	23 (20)	78 (70)	11 (10)	89 (80)
2. Theses and conclusions	27 (24)	72 (64)	13 (12)	85 (76)
3. Explore alternative approaches and/or future study of the question	46 (21)	59 (53)	7 (6)	66 (59)
Social Sciences				
1. Identify multiple dimensions of a good question	6 (6)	40 (43)	46 (50)	86 (93)
2. Multiple and complex answers to questions/issues/problems	2 (2)	45 (49)	45 (49)	90 (98)
3. Theses and conclusions	24 (26)	40 (43)	28 (30)	68 (74)
4. Implications	8 (9)	60 (65)	24 (26)	84 (91)
5. Develop potential solutions to problems based on sound evidence and reasoning	30 (33)	37 (40)	25 (27)	62 (68)

Table 4. Frequency Distributions of Student Scores for Quantitative Foundations Outcomes

Quantitative Foundations (Literacy)	Does Not Meet (0) *N (%)*	Benchmark (1) *N (%)*	Milestones (2) *N (%)*	Milestones (3) *N (%)*	Capstone (4) *N (%)*
1. Interpretation	4 (10)	5 (12)	14 (35)	12 (30)	5 (12)
2. Representation	2 (5)	5 (12)	14 (35)	15 (38)	4 (10)
3. Calculation	3 (8)	4 (10)	12 (30)	15 (38)	6 (15)
4. Application/analysis	5 (12)	6 (15)	19 (48)	9 (22)	1 (2)
5. Assumptions	7 (18)	8 (20)	16 (40)	7 (18)	2 (5)
6. Communication	5 (12)	2 (5)	17 (42)	13 (32)	3 (8)