**CASL’s AY18 Quantitative Reasoning Data Executive Summary**

As of Fall 2018, CASL has direct assessment data for the Quantitative Reasoning (QR) learning goal from the CLA+ exam, given to freshmen in Fall 2017 and seniors in Spring 2018. Currently, CASL has no plans to administer another direct assessment in QR.

NATIONAL SURVEY OF STUDENT ENGAGEMENT (NSSE) [FROM AY17 REPORT]

NSSE data related to Quantitative Reasoning is based on survey data from 222 EIU freshmen & 328 EIU seniors from AY17.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Never** | **Sometimes** | **Often** | **Very Often** |
| **In coursework, reached conclusions based on own analysis of numerical information** | | | | |
| **EIU**/ Midwest Public **Freshmen** | **9%**/ 11% | **33%**/ 39% | **43%**/ 37% | **14%**/ 13% |
| **EIU**/ Midwest Public **Seniors** | **14%**/ 11% | **36%**/ 35% | **33%**/ 35% | **17%**/ 19% |
| **Used numerical information to examine a real-world problem or issue (unemployment, climate change, public health, etc)** | | | | |
| **EIU**/ Midwest Public **Freshmen** | **19%**/ 20% | **45%**/ 43% | **23%**/ 28% | **12%**/ 9% |
| **EIU**/ Midwest Public S**eniors** | **20%**/ 18% | **37%**/ 39% | **27%**/ 28% | **16%**/ 14% |
| **Evaluated what others have concluded from numerical information** | | | | |
| **EIU**/ Midwest Public **Freshmen** | **18%**/ 19% | **41%**/ 45% | **32%**/ 28% | **9%**/ 8% |
| **EIU**/ Midwest Public **Seniors** | **20%**/ 16% | **42%**/ 42% | **26%**/ 29% | **12%**/ 13% |

* Approximately 57% of EIU freshmen and 50% of EIU seniors indicate they have reached conclusions based on their own analysis of numerical information often or very often;
* Eight percent more EIU seniors (43%) than EIU freshmen (35%) indicate that within their coursework they have used numerical information to examine real-world problems often or very often. These percentages are close to trends at Midwest public institutions. Approximately 20% of each level indicate never doing this in classes.
* Three percent less EIU seniors (38%) than EIU freshmen (41%) replied that they had often or very often evaluated what others have concluded from numerical information; again, these percentages are comparable to students at other Midwest public institutions. Twenty percent of EIU seniors and 18% of EIU freshmen indicate they have never done this in classes.

CLA+ RESULTS - OVERALL

In AY 2018, CASL administered the CLA+ exam to 84 freshmen and 89 senior students. The mean overall score for freshmen was 936 and for seniors was 1035, which corresponds to “below basic” and “basic” level of mastery respectively across the subjects covered by the test. Overall, freshmen at EIU score 96 points below the national average (1032) and seniors score 93 points lower (1128).

CLA+ RESULTS – QUANTITATIVE REASONING

Supporting documents for the Scientific and Quantitative Reasoning set discuss real-life research results. To answer the ten questions in this section, students must:

* apply critical-thinking skills that include making inferences and hypotheses based on given results
* evaluate the reliability of information (such as experimental design or data collection methodology)
* identify information or quantitative data that is connected and conflicting
* detect questionable assumptions (such as implications of causation based on correlation)
* support or refute a position, and draw a conclusion or decide on a course of action to solve a problem
* evaluate alternate conclusions, and recognize when a text has open issues that require additional research

|  |  |  |
| --- | --- | --- |
| Mean Score (and range from 25th-75th percentile) | | |
|  | **EIU** | National Average |
| Freshmen | **432** (391-498) | 499 (473-519) |
| Seniors | **519** (453-597) | 546 (524-567) |
| Mean Gain | **87** | 47 |

Whereas 45% of EIU freshmen reported putting “no effort at all” or “a little effort” into answering the selected response questions, only 16% of freshman across CLA+ institutions reported similar results. In addition, 26% of EIU seniors reported putting “no effort at all” or “a little effort” into answering the selected response questions, only 13% of seniors across CLA+ institutions reported similar results.

Interpretation: Although mean scores for EIU freshmen are lower than the National Average for freshmen, there is a much larger gain of 87 made by EIU seniors than the National Average gain of 47. Results indicate that EIU students show significant improvement in Quantitative Reasoning during their time on campus, but even so EIU seniors graduate with significantly less skill in this area than the national average. **Put in a different way, although EIU seniors graduate with less skill in Quantitative Reasoning tasks compared to the national average, they gained more skill in this area than seniors at other institutions.**

QUANTITATIVE REASONING SURVEY RESULTS

Thirty-one departments responded to CASL’s QR Survey conducted in Spring 2018. The results show that most departments on campus both explicitly taught and assessed the QR learning objectives either frequently or occasionally in the undergraduate courses in their department as shown in the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Explicitly Taught  Assessed | **Frequently** | **Occasionally** | **Rarely** | **Never** |
| Perform basic calculations & measurements | 15—48%  8—26% | 10—32%  11—35% | 5—16%  5—16% | 1—3%  5—16% |
| Apply quantitative methods and use resulting evidence to solve problems | 15—48%  10—32% | 11—35%  11—35% | 4—13%  6—19% | 1—3%  3—10% |
| Reading, interpreting, and constructing tables, graphs, charts, and other representations of quantitative material | 14—45%  11—35% | 13—42%  12—39% | 4—13%  5—16% | 0  2—6% |
| Critically evaluating quantitative methodologies and data | 13—42%  7—35% | 11—35%  12—39% | 5—16%  7—23% | 2—6%  3—10% |
| Constructing cogent arguments utilizing quantitative material | 13—42%  9—23% | 11—35%  11—39% | 5—16%  5—16% | 2—6%  5—16% |
| Using appropriate technology to collect, analyze, and produce quantitative materials | 12—39%  7—23% | 8—26%  9—29% | 7—23%  8—26% | 4—13%  6—19% |

As of AY2018, 53% of departments included the QR learning goal as part of their department assessment plan.

For more information on incorporating Quantitative Reasoning in General Education courses, see <http://www.eiu.edu/learninggoals/quantitative.php>.