

**Assessment Data
Fermanian School of Business (FSB)
General Education: Economics
Report, AY 2015-2016**

Learning Outcome:

1d. Critical Thinking: Students will be able to examine, critique, and synthesize information in order to arrive at reasoned conclusions.

Outcome Measure:

The AACU Critical Thinking Value Rubric (an existing rubric) will be used to evaluate an essay placed on the final exam in each of the general education economics courses. Essays will differ for each course according to its content, but the same essay will be used across all sections of each of the three general education economics courses:

- o ECO 100 Principles of Economics
- o ECO 101 Principles of Macroeconomics
- o ECO 102 Principles of Microeconomics

The five components of this outcome as measured by the AACU Critical Thinking Value Rubric were adapted to general education economics as follows:

- o Component 1: Students will be able to clearly state the economic issue or problem
- o Component 2: Students will be able to use proper information or evidence in considering the economic issue or problem
- o Component 3: Students will be able to understand the influence of the context and assumptions in analyzing the information used
- o Component 4: Students will be able to use information to formulate a position and clearly state it
- o Component 5: Students will be able to identify consequences and draw logical conclusions by using evidence appropriately

Criteria for Success (if applicable):

The FSB continued to use the AACU Critical Thinking Value Rubric and scoring the data using two possible criteria for success during AY 2015-2016 (listed below). In the future the FSB Assessment Committee and instructors of general education economics courses will discuss the most appropriate criteria for success with input from the FSB jury of evaluators, in order to determine whether to narrow the criteria to a single measure of success.

Criteria for Success 1:

A random sample of students will score an average of 2.5 or higher for each component of the AACU Critical Thinking Value Rubric.

Criteria for Success 2:

70% of a random sample of students will score 3.0 or higher on each component of the AACU Critical Thinking Value Rubric.

Longitudinal Data:

This report adds AY 2015-2016 data to the initial data collected by FSB on GE learning outcomes, which was Spring 2015. The data tables are at the end of this document.

During Fall 2015 one section of ECO 100, two sections of ECO 101, and three sections of ECO 102 were offered. There were three instructors (including one adjunct). All six sections of the three courses were assessed, and the same question was used for multiple sections of the same course. During Spring 2016, three sections of ECO 101 and two sections of ECO 102 were taught and all were assessed. There were two instructors, and the same questions were used for the entire academic year and for multiple sections of the same course. In the spring an improvement in the assessment evaluation methods was instituted: a jury of two faculty members who were not the instructors of any of the courses for the AY 2015-2016 was used to evaluate student work.

Conclusions Drawn from Data:

GE economics students consist of both business majors and non-majors in macroeconomics (ECO 101), microeconomics (ECO 102), and a combination macro and micro course (ECO 100). A key desired outcome for all of these students is that they become aware of and be able to critically examine the significant economic issues currently facing society. Using critical thinking to understand problems of importance, recognizing the information that is relevant, using information properly in context, analyzing the information appropriately, and drawing proper conclusions from the evidence are all important factors in this process. This is what the AACU critical thinking rubric applied to the general education economics courses attempts to assess.

Assessment of ECO 101 and 102 started in Spring 2015, and based on recommendations made following the Spring 2015 assessment, during AY 2015-2016 the same question for ECO 102 was used, the question for ECO 101 was redesigned, and a new (initial) assessment question was created for ECO 100. The scope of the data that was collected for AY 2015-2016 appears in Table 1. Students were grouped according to the three courses, and either the entire student population in the course was evaluated, or a random sample of at least 25% of the student population was evaluated. In all 107 general education economics students were evaluated out of a population of 362 students (29.6%).

Longitudinal data on the assessment scores for Criteria 1 and 2 appears in Tables 2 and 3, respectively, including the initial assessment results from Fall 2015 and results from the current AY 2015-2016 (Fall 2015 and Spring 2016).

Assessment Design and Evaluation Methods

By comparing results for ECO 101, assessment scores reveal that question design significantly impacts student performance. Since the same question was used for ECO 102 in the first two semesters (Spring 2015 and Fall 2015) with the same evaluator, a direct comparison of the two groups of students can be made. In Spring 2016 an improvement was made to the assessment methods used to evaluate the data by using a jury of two faculty who were not instructors for the courses. Calibration and no more than one point difference on each score were standardized to improve the reliability of the assessment results. The results appear in Tables 2 and 3. Cells that do not meet the criteria for success are "red flagged" (highlighted in red). Scores appear to be generally lower overall once the jury was instituted, so it is possible that there was a different interpretation of the rubric by the instructor as compared to the jury, or that there was instructor bias. In any case, best practices call for the jury approach and data will be more comparable in the future moving forward.

Combined Economics (ECO 100)

For the combined macro and micro course (ECO 100) results show that for criteria 1 (score 2.5 or higher), three of the five scores are satisfactory (components one, two and five), but two are not (components three and four). Students scored 2.4 on contextualizing the information (component three) and analyzing information (component four), which is only 0.1 point away from the satisfactory cutoff. For criteria 2 (70% score 3.0 or higher), only component three (understanding the influence of context and assumptions) is unsatisfactory. The overall results for ECO 100 are generally satisfactory.

Macroeconomics (ECO 101)

For AY 2015-2016 using the student sample with the redesigned question, macroeconomic (ECO 101) students meet criteria 1 (2.5 or higher on each component) for all components in both Fall 2015 and Spring 2016 with the exception of the fourth component (use information to formulate a position and clearly state it) in the Spring 2016 sample. Using criteria 2 (70% score 3.0 or higher on each component), macroeconomics students meet the criteria for the first and second components (stating the problem and using proper information in considering the problem), but not the third, fourth and fifth components (understanding the influence of the context and assumptions, formulating and stating a position using the information, and using the evidence appropriately to identify consequences and draw logical conclusions). Thus, macroeconomics students show some level of mastery of the critical thinking learning outcome (stating the problem and using information), but need some improvement to achieve other parts of the critical thinking learning outcome (understanding context, stating a position using appropriate information, and drawing logical conclusions). The overall results for ECO 101 are satisfactory for Criteria 1 and mixed for Criteria 2.

Microeconomics (ECO 102)

Keeping in mind the change in evaluation methods from instructor to jury, the results show that general education microeconomics (ECO 102) students generally do meet Criteria 1 (2.5 or higher on each component). There is only one exception for component five (draw logical conclusions using evidence appropriately) in one semester (Fall 2015) where students performed unsatisfactorily. However, it is important to note that scores using the jury approach were generally lower, and there was a more pronounced lowering of the second component (using proper evidence to consider the economic problem) with the jury. However, microeconomics students generally do satisfactorily meet the critical thinking learning outcome when using Criteria 1 (2.5 or higher on each component).

With respect to Criteria 2 (70% score 3.0 or higher on each component), microeconomics students meet the criteria when it comes to the first component (stating the problem), third component (understanding the influence of the context and assumptions in analyzing the information used), and fourth component (using information to formulate a position and clearly state it), but they do not meet the criteria for success for the second component (clearly stating the economic issue or problem) and the fifth component (identifying consequences and drawing logical conclusions by using evidence appropriately). So performance on the critical thinking learning outcome shows mixed results when Criteria 2 is used. The overall results for ECO 102 are satisfactory for Criteria 1 and mixed for Criteria 2.

General Results

The longitudinal data show that question design and method of evaluation (instructor vs. jury) matter to the scores that emerge from the evaluation. The jury scores are different (lower) than the scores by instructors in most cases. This can at least partially be explained by rubric interpretation. Going forward a jury with calibration will be used, and scores will be more comparable.

Overall results show that about 20% of the cells in Table 2 are “red flagged” (red highlighted) or do not meet the critical thinking learning outcome using Criteria 1, and about 43% of the cells in Table 3 are “red flagged” or do not perform up to satisfactory standards using Criteria 2. So, although improvements can be made across the board, Criteria 2 is the measure for which performance is inadequate. General education economics courses succeed in meeting critical thinking learning outcomes pretty well using Criteria 1.

Recommendations:

Recommendations from the last report were considered and progress was made for AY 2015-2016, specifically with respect to creating questions (ECO 100), redesigning questions (ECO 101), and using a jury of evaluators (Spring 2016). Assessment results based on these changes were discussed in this report.

Recommendations moving forward include continuing to work on question design, rubric interpretation, jury calibration, and student instruction to meet the critical thinking learning outcome. Specific recommendations appear here:

1. Review the design of the questions to discuss their alignment with the components used to describe critical thinking components applied to economics.
2. Review instructions for the jury of evaluators with respect to interpreting the rubric.
3. Discuss ways to improve student learning and mastery of critical thinking skills.

Rubric Used:

AACU Critical Thinking Value Rubric (existing and attached in a separate pdf document)

Table 1: Data Collected and Sample Size, AY 2015-2016

GE Economics: Fall 2015					GE Economics: Spring 2016				
Class	Semester	Enrollment	Sample size	Sample percent	Class	Semester	Enrollment	Sample size	Sample percent
ECO 100	Fall 2015	18	18	100.0%	ECO 100	N/A	N/A	N/A	N/A
ECO 101	Fall 2015	71	20	28.2%	ECO 101	Spring 2016	87	22	25.3%
ECO 102	Fall 2015	107	27	25.2%	ECO 102	Spring 2016	79	20	25.3%

**Table 2: Longitudinal Data
GE Economics Courses: Average Scores**

AACU Critical Thinking Value Rubric (adapted to economics GE)							
Class	Semester	Students will be able to clearly state the economic issue or problem	Students will be able to use proper information or evidence in considering the economic issue or problem	Students will be able to understand the influence of the context and assumptions in analyzing the information used	Students will be able to use information to formulate a position and clearly state it	Students will be able to identify consequences and draw logical conclusions by using evidence appropriately	average score
ECO 100	Fall 2015	3.3	2.6	2.4	2.4	3.3	2.8
ECO 101	Spring 2015	2.2	2.1	2.1	2.9	2.6	2.4
ECO 101	Fall 2015	3.7	3.0	2.7	2.9	3.0	3.0
ECO 101	Spring 2016	3.7	3.3	2.8	2.3	2.7	3.0
ECO 102	Spring 2015	3.8	3.7	3.7	3.1	2.9	3.4
ECO 102	Fall 2015	3.7	3.9	3.9	2.5	2.0	3.2
ECO 102	Spring 2016	3.2	2.7	3.2	3.0	2.8	3.0

Note: "red flagged" (red highlighted) cells do not meet the criteria for success.

**Table 3: Longitudinal Data
GE Economics Courses: Percent with Scores above 3.0**

AACU Critical Thinking Value Rubric (adapted to economics GE)							
Class	Semester	Students will be able to clearly state the economic issue or problem	Students will be able to use proper information or evidence in considering the economic issue or problem	Students will be able to understand the influence of the context and assumptions in analyzing the information used	Students will be able to use information to formulate a position and clearly state it	Students will be able to identify consequences and draw logical conclusions by using evidence appropriately	average score
ECO 100	Fall 2015	90.0%	75.0%	65.0%	85.0%	75.0%	78.0%
ECO 101	Spring 2015	33.3%	44.4%	33.3%	55.6%	44.4%	33.3%
ECO 101	Fall 2015	90.0%	75.0%	65.0%	85.0%	75.0%	78.0%
ECO 101	Spring 2016	86.4%	72.5%	47.7%	29.5%	54.6%	65.9%
ECO 102	Spring 2015	94.1%	100.0%	94.1%	82.4%	64.7%	94.1%
ECO 102	Fall 2015	100.0%	96.3%	100.0%	48.1%	22.2%	81.5%
ECO 102	Spring 2016	92.5%	62.5%	95.0%	87.5%	67.5%	55.0%

Note: "red flagged" (red highlighted) cells do not meet the criteria for success.

