2009 General Education Summer Assessment Institute
NUMERACY Summary Report—DRAFT

In July 2009, an institute was conducted to assess LCC student artifacts collected during the 2008-09 school year for Numeracy. The institute consisted of six faculty readers and a faculty coordinator. Readers were selected by the General Education Committee. Artifacts were evaluated based on rubrics developed by the Capstone and General Education Committees. Readers for the Numeracy Institute included: **Tim Allwine**, **Brad Benjamin**, **Joan Herman**, **Klint Hull**, **Pete Livins**, and **Cheryl Ronish**. **Dawn Draus** served as faculty coordinator.

A summary of findings and recommendations follows. Please note that the rubrics were not designed for comparisons between individual criteria. Rather, the average scores will serve as indicators of attainment in each area, and will provide a baseline for comparison during the next round of evaluation. Artifacts were evaluated on a scale of 1 to 3 (1, 1.5, 2, 2.5, 3) for Numeracy.

OVERVIEW: NUMERACY

A total of 232 artifacts were submitted. Of the 232, 136 randomly selected artifacts were reviewed by institute readers (with exception noted below). No artifacts were determined to lack evidence to assess in at least one area. Each artifact was evaluated by a minimum of two and a maximum of seven readers. Very minor revisions to the rubric were discussed and implemented during the evaluation period.

It was extremely evident that participants are needed from each discipline that has submitted artifacts to the institute. Accurate assessment of artifacts is very difficult, if not impossible, without guidance from content experts. Two batches of chemistry artifacts were set aside due to the lack of timely access to a content expert. Alternatively, it was suggested that instructors could indicate in some way if the formulas presented are accurate, leaving the assessment of the actual numeracy outcomes up to the readers. In the case of the chemistry artifacts, readers felt that they couldn't assess the outcomes without knowing whether the calculations were appropriate for the experiment. Similar assignments from physics were deemed assessable due to the presence of a content expert in the room.

Readers felt that the numeracy rubric and scale (1, 1.5, 2, 2.5, 3) was much more stable and usable than the citizenship rubric and scale (1, 2, 3, 4). Readers particularly liked the in-between, or "half point" scores. The "half point" (1.5 and 2.5) scores were used in 37% of the assessments. Fourteen percent of the outcomes assessed required a third read, compared to 20% of the citizenship artifacts.

Overall, readers were very impressed with what our students are learning regarding numeracy. This is also true for citizenship, although the numbers don't necessarily reflect that. There is room for improvement here, in addition to citizenship, in terms of assignment development in ways that better capture our outcomes (although the overall effort was very good). It was noted that we didn't receive artifacts from all areas of the college that address numeracy, including the philosophy course that counts toward our quantitative reasoning requirement.

Readers reported that the work conducted in the institute really informs their teaching, helping them to integrate more readings and prompts related to the gen ed outcomes into their courses. After last summer's institute, faculty reported more integration of multicultural readings and prompts into their courses. This year, faculty report plans to integrate more content related to citizenship, and graphs and statistics. Readers reported that they particularly liked the assignment asking students to explain how the statistics in their papers could be distorted—definitely good in terms of critical thinking skills. Participating in the institute helps faculty better see and understand the connections between the different gen ed outcomes across the curriculum.

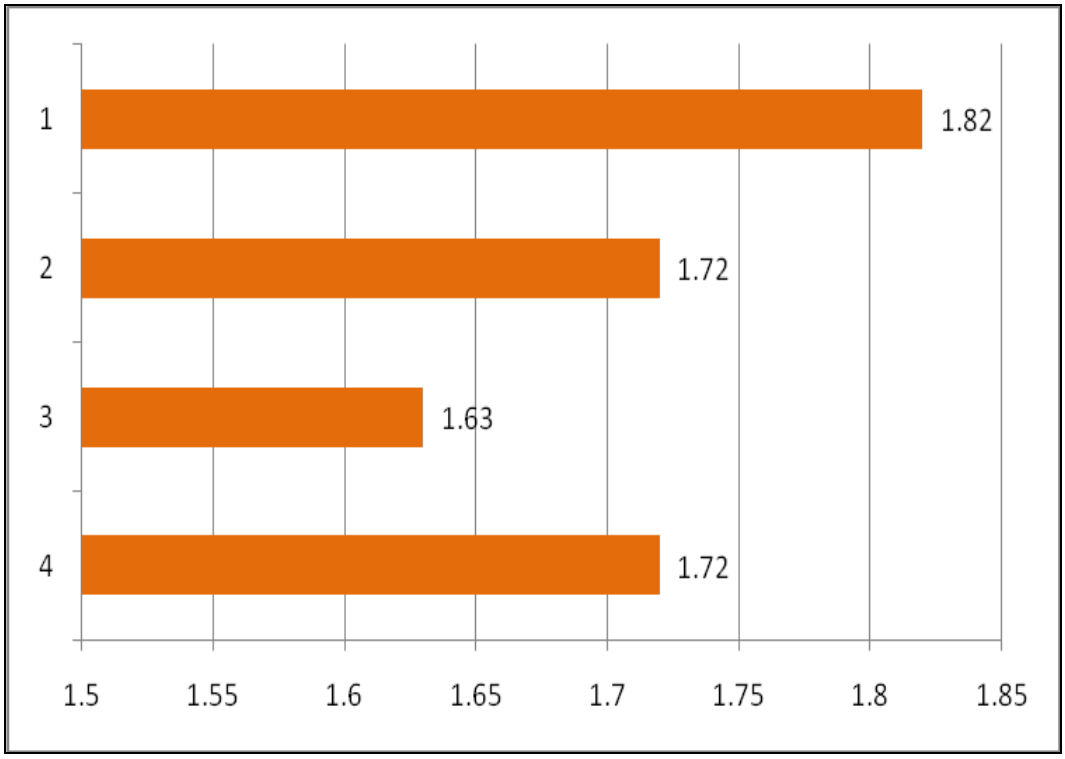
SCORES: NUMERACY

Numeracy *Achieve* competency with numbers and graphical skills to interpret and communicate quantifiable information, and apply mathematical and statistical skills in practical and abstract contexts.

Table 3: Overview of Numeracy Scores

Criteria	Average Score	Range of Average Scores	Artifacts evaluated
#1) Students will analyze, interpret and draw valid inferences from graphical and numerical data.	1.82	1.00 – 3.00	133
#2) Students will use quantitative skills to arrive at a solution/conclusion.	1.72	1.00 – 3.00	133
#3) Students will use quantitative skills to assess the validity of a proposed solution/conclusion.	1.63	1.00 – 2.50	78
#4) Students will communicate numerical and mathematical processes using appropriate symbols, language and terminology.	1.72	1.00 – 3.00	135

Figure 4: Average Numeracy Scores



RECOMMENDATIONS: NUMERACY

- Consider revising all gen ed rubrics to the 3-point scale used for numeracy, with the ".5" scoring options.
- Be careful to avoid absolute language in the rubrics (words like "all," and "must") to provide a little flexibility for readers.
- Encourage linked courses to promote numeracy, such as a linked business (marketing) and statistics course (integrated studies would be even better).
- Consider creating joint assignments to encourage interdisciplinary collaboration. One model to consider is an assignment that had English 101 students work with machining students to write a paper about a machining process. This type of collaboration does not require formal linkages between courses.
- On assessment day, provide breakout session for math/science faculty after general session (with the agenda to include a debrief session on the numeracy findings and a discussion of assessment of AS-T students).
- Break out tasks for next summer's institute by quarter, with rubric testing in fall, assignment development in winter, and artifact collection in winter and spring. Engage faculty outside of the Gen Ed Committee in this process.
- Develop the course map for Interpersonal Skills as soon as possible, perhaps even during orientation week if possible.
- Spend the majority of assessment day during orientation week planning for the 2010 institute, which will focus on Interpersonal Skills and Communication. Although the process for assessing Communication is developed and tested (using capstone papers), the Interpersonal Skill outcomes have not been discussed. Avoidance of another institute where there is a misalignment between the outcomes and artifacts would be ideal.