Marking the end of a four-year review cycle that began in the Fall, 2014 semester with the introduction of unit-reduction and the new curriculum in the Liberal Arts and Sciences department, a Student Evidence Semester Review Report of Junior level work from Fall, 2016 was presented to the LAS Faculty. (1) Included in the report was an analysis of the LAS ILOs using Signature Assignments based upon a rubric was built into the Signature Assignment. The faculty completed the Signature Assignment by determining if submitted student evidence achieved a baseline C-Level competency for Written Communication, Critical Thinking and Information Literacy.

The results of the LAS assessment for the overall average scores for each learning outcome for each semester’s evidence review students demonstrated competency in Written Communication, however they neither demonstrated competency in Critical Thinking nor in Information Literacy in the Sophomore and Junior levels. In other words, the Signature Assignments revealed a drop in Critical Thinking and Information Literacy in the Sophomore level work.

When the Fall, 2017 semester began, I read an article in the Wall Street Journal that reported "International rankings show U.S. college graduates are in the middle of the pack when it comes to numeracy and literacy and near the bottom when it comes to problem solving." (2) This article in the Journal reinforced the LAS department’s assessment of student core competencies that began in Fall, 2014 where the research demonstrated a decline in critical thinking in the sophomore and junior levels.

I teach an interdisciplinary LAS CAIL sophomore course where my site partner is FilmAid International, a global humanitarian refugee relief organization. In my class, through films, readings and lectures, we have been addressing the global refugee crisis.

Thinking of the drop in critical thinking abilities in the Sophomore year, I was interested in developing a pedagogy to teach critical thinking in the sophomore curriculum and provide students with strategies on how to problem solve. To better teach critical thinking strategies and diversity on the sophomore level, I adapted problem solving and scientific methods in sociology found in the text Essentials of Sociology. (3)

The study I conducted had a multi-step process designed to assess the students’ abilities to think critically in relation to a problem-solving group project I designed for them. First I tested the students; then, I asked them to engage in a practical problem-solving task which was assessed using the Sophomore rubric.
My first step was to ask my sophomore students respond to a pre-assessment questionnaire and then my second step was to provide them with a post-assessment problem solving assignment. The pre-assessment questionnaire consisted of 10 multiple choice questions gleaned from Watson Glaser Critical Thinking Test for high-level reasoning skills (this pre-test is attached in Addendum A). The Watson Glaser test “is designed to assess your verbal reasoning, critical thinking and judgment through logical evaluation of verbal arguments and formation of comparisons, conclusions and interpretations regarding these arguments”. (4)

Results of the pre-assessment revealed correct student responses and the students fared well (in only 2 of the two 10 questions did students score below 65.5%).

Below are correct student response percentages to each of the 10 pre-test questions which are provided in Addendum A:

1. 82.0% correct
2. 75.9% correct
3. 51.7% correct
4. 65.5% correct
5. 89.7% correct
6. 100% correct
7. 82.8% correct
8. 93.1% correct
9. 79.3% correct
10. 71.4% correct

After completing the pre-assessment, the students were presented with a lecture on Aristotelian reasoning (Ethos, Pathos and Logos definitions) (5) including inductive reasoning, deductive reasoning and common fallacies. (6) I then presented the students with YouTube videos on critical thinking. (7, 8) The next step in my process was to set up a collaborative research project in which the students worked in teams to solve problems through analysis and critique. For the group collaborative project, I created a final group CAIL research project in which diversity and critical thinking were integral to the problem-solving process (the prompts for this final group project are provided in Addendum B).

This project was graded using the Sophomore rubrics that address the three core competencies that LAS uses to assess Signature Assignments for institutional review for Foundation through Senior level. (9) As a result of the scaffolding of the students’ knowledge of critical reasoning and problem-solving, the completed student projects demonstrated research, critical thinking and problem-solving abilities that exceeded the results of the LAS Assessment in Critical Thinking in the Sophomore year.

Individual student grades for the final project are provided below and the results indicate there was only one student who did not demonstrate core competency at the C level (it should be noted this was student for whom English is a foreign language).
From this very limited example, it would appear that when presented with practical issues that require solutions, Sophomore level LAS students actually possess critical thinking skills and problem-solving strategies to solve real life problems, indicating that the skills they learned from the Foundation years were merely dormant and could be revived. The results of the work with my class also suggests that not only do the students already possess the basic tools for critical thinking, but that it is also possible to build upon and refine their critical reasoning skills so they enter the Junior and Senior levels better thinkers and problem solvers, as well as better team players. Art students are regularly confronted with artistic challenges that require research, critical thinking and problem-solving strategies in their studio classes and our work in Liberal Studies is to provide a Liberal Arts and Sciences education that enriches, augments and supports the work students perform in studio.

At the present time there are a number of LAS CAIL Sophomore electives from which the students can choose. Some of these LAS electives may provide Signature Assignments in which research, problem-solving and critical thinking are imbedded while others may not. My work with the Sophomore students suggests that the Sophomore level LAS Signature Assignments could be adapted to assess critical thinking. The results of my class assignments indicate that a researched-based problem-solving Signature Assignment could be customized to the course content for any Sophomore level LAS elective or even that a critical thinking exercise could be written independently of the Signature Assignment. Perhaps such an exercise in critical thinking could be included in all Sophomore level LAS classes to prevent the drop in student abilities in reasoning and problem-solving.

An LAS sub-committee could be tasked with considering critical thinking exercises that could be adapted for all Sophomore level LAS Signature Assignments. As an Adjunct Professor, I could not lead such a committee, however I would of course volunteer to serve on the committee and believe that the other members could perhaps include the Senior Director of Library and Learning Centers, the LAS faculty Instructional Designer, a representative from the English faculty and a representative from the art history faculty. The problem-solving exercises could be designed so that each discipline, from math to social studies, could customize them to suit the demands of the course and individual professors could make the necessary adjustments for their classes. This project would be designed as a bridge between critical thinking skills learned in the Foundation year and those that will be needed in the Junior and Senior years.
The committee could create exercises in critical thinking in order to test the efficacy for one semester and then assess the results. Based on the feedback from the results, any perceived adjustments could be made for the second semester when the process could be refined by the committee. If, as I hope, the problem-solving skills and critical thinking abilities are reinforced during the Sophomore year, then it could be possible to incorporate the selected exercises as a part of the Sophomore curriculum.
Bibliography

1. Student Evidence Semester Review Report, Junior Level Courses, Fall 2016, Liberal Arts and Sciences (LAS).

2. Exclusive Test Data: Many Colleges Fail to Improve Critical-Thinking Skills: Results of a standardized measure of reasoning ability show many students fail to improve over four years—even at some flagship schools, according to a Wall Street Journal analysis of nonpublic results, Douglas Belkin, June 5, 2017.


5. https://pathosethoslogos.com/


7. https://www.youtube.com/watch?v=GzV1pNQUX5s


9. 3OutcomeRubricsophomore2017 copy.pdf
Addendum A:

Critical Thinking Pre-Test
This form will provide a basis for determining your understanding of Critical Thinking. This information will be used to assist me in creating new instructional supports to help teach critical thinking.

* Required

Select Course * Mark only one oval.
Movies that Matter CAIL

Name: *

Otis College ID Number *

1. You're trying to decide what kind of car to buy. You make a chart to compare a two-seater sports car, a two-door sedan and a minivan in three categories. Which would NOT be a suitable category? * Mark only one oval.

   price
   gas mileage
   tire pressure
   storage capacity

2. Which scenario best represents a situation that has been decided by emotion alone? * Mark only one oval.

   A. Sue hates the winter so even though she can't afford it, she takes a vacation in the Bahamas
   B. The school shuts down after a bomb threat.
   C. Third-quarter earning for Marie's company were much higher than predicted.
   D. Alexis needs a new mixer so she watches the newspaper ads and buys one when it goes on sale.

3. When would it be better to do research in the library than on the internet? * Mark only one oval.

   A. You are writing a report on recent U.S. Supreme Court decisions.
   B. You want to know the historical performance of a stock you are considering purchasing.
   C. You need to compare credit cards.
   D. You want to find out more about the old trails through the forest in your town.

4. You read a story in the newspaper about salary negotiations with the public transportation workers. The workers are threatening to go on strike tomorrow if their demands for higher wages and better benefits are not met. What can you infer from the story? * Mark only one oval.

   A. Health insurance premiums are very expensive.
   B. The cost of gas will make ticket prices increase in the next few weeks.
C. People who ride the bus should look for possible alternative transportation.
D. Employers never like to meet salary demands.

5. What should you not rely on when making a judgment call? * Mark only one oval.
   □ A. Intuition
   □ B. Common sense
   □ C. Gossip
   □ D. Past experience

6. Which is a judgment, not a fact? * Mark only one oval.
   □ A. That production of HAMLET was first-rate; you'll never see it done better.
   □ B. That production of HAMLET was first-rate; it was cited as such in the Daily News.
   □ C. That production of HAMLET was first-rate; it won an award this year.
   □ D. That production of HAMLET was first-rate; 94% of the audience members interviewed after the show agreed.

7. What is wrong with the following argument? America -- love it or leave it! * Mark only one oval.
   □ A. There is nothing wrong with the argument.
   □ B. It implies that if you leave the country on vacation, you do not love it.
   □ C. It does not tell you how to love it.
   □ D. It presents only two options when in fact there are many more.

8. Which is NOT a likely cause of this situation? "I can't turn on the lamp in the family room!" * Mark only one oval.
   □ A. The lamp isn't plugged into an electrical outlet.
   □ B. We just bought a new couch in a color that matches the lamp.
   □ C. There's a power outage in the neighborhood.
   □ D. the light bulb in the lamp has burned out.

9. What is wrong with the logic of the following statement? "How can you believe his testimony? He's a convicted felon!" * Mark only one oval.
   □ A. The fact that the person testifying was convicted of a crime does not mean he is lying.
   □ B. convicted felon cannot testify in court.
   □ C. The person speaking has a bias against criminals.
   □ D. The person speaking obviously did not attend law school.

10. Which of the following is a sound argument? * Mark only one oval.
    □ A. Rain was predicted yesterday, so I took my umbrella to our outdoor rehearsal of 'Romeo & Juliet'. It didn't rain. To make sure it doesn't rain during today's rehearsal I'll take my umbrella with me.
B. You and Danny broke up the night you had dinner at Mangano's so don't worry; you and Max won't break up as long as you never go to Mangano's!

C. My science teacher bases a lot of our grade on class participation. Last quarter he said I needed to participate more. If I want a better grade this quarter I need to take part in more class discussions.

D. Our washing machine is broken. The last time we had trouble with it we hired a new repairman. He's probably the reason the machine broke!
Addendum B.

Movies that Matter CAIL final group project: These are the prompts:

We live in a world in chaos where millions of people are forced from their homes in search of food, water, peace and freedom. Imagine you live in a country that is experiencing a major upheaval and your life is about to dramatically change. As a team you must determine the following:

What country do you live in?
What language do you speak?
What does your family do for a living?
What is your family’s economic status?
What are your family’s educational accomplishments?
How comfortable is your life?

Now, imagine you have become a refugee. What were the circumstances that caused you to become a refugee?

Where will you go?
How will you get there?
What will you take with you?
What will you do?
What will you say?
Who can you turn to?
What language will you now have to speak?
If you don’t speak the language, how will you communicate?
How will you stay in touch with those you care about?
How will you eat, sleep, communicate, obtain and pay for goods and services?

Work with your team, who are your only allies, to determine what you as a group will do, where you will go, how you will communicate, what you will say, how will you earn and what can you create to survive.

Now that you are all refugees with a common goal, create a project that communicates where you’ve been and how you are going to survive.

Your team must create a written description of your project where each member of your group participates in the writing and in the creation of the visuals for the Final Group Project which you upload to Submissions on OSpace under Final Group Project.

Your final group project can be presented in a variety of formats – your project can be:
OARS Grant - Chasin

1. a graphic novel
2. a video project
3. a comic book
4. a photo essay
5. a TED type talk
6. a Public Service Announcement (PSA)
7. a multi-media piece

You must upload the written explanation of the project in which each team member participates as well as the images for your project to OSpace. You must research this final project and your written presentation must include an annotated bibliography (refer to the Sophomore rubric).

Each team will present their final projects to the class in 10-20 minute oral presentation with visuals.