

CRITICAL THINKING Annual Report

Creating Relevance Using Assessment Results

MAY 2016

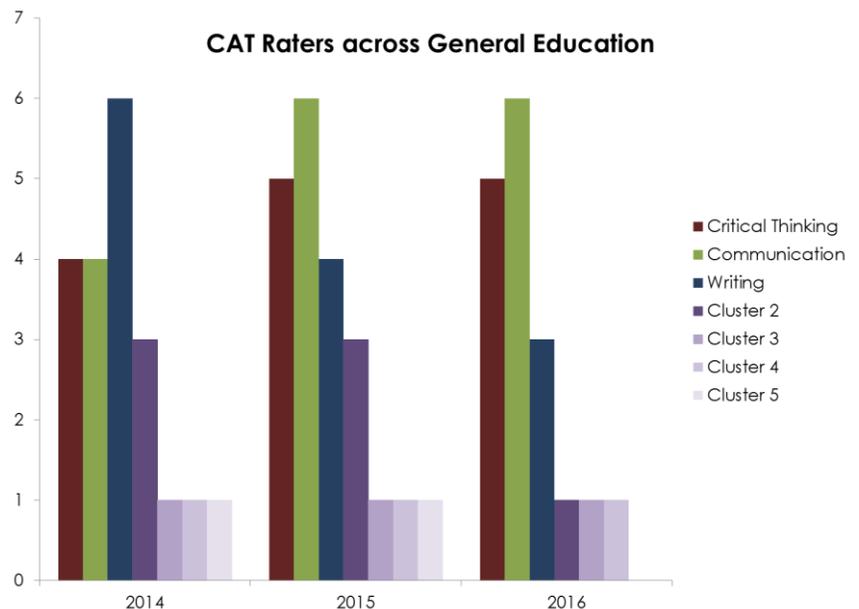


Critical Thinking (CT) experts don't agree on the demonstration of CT skills.

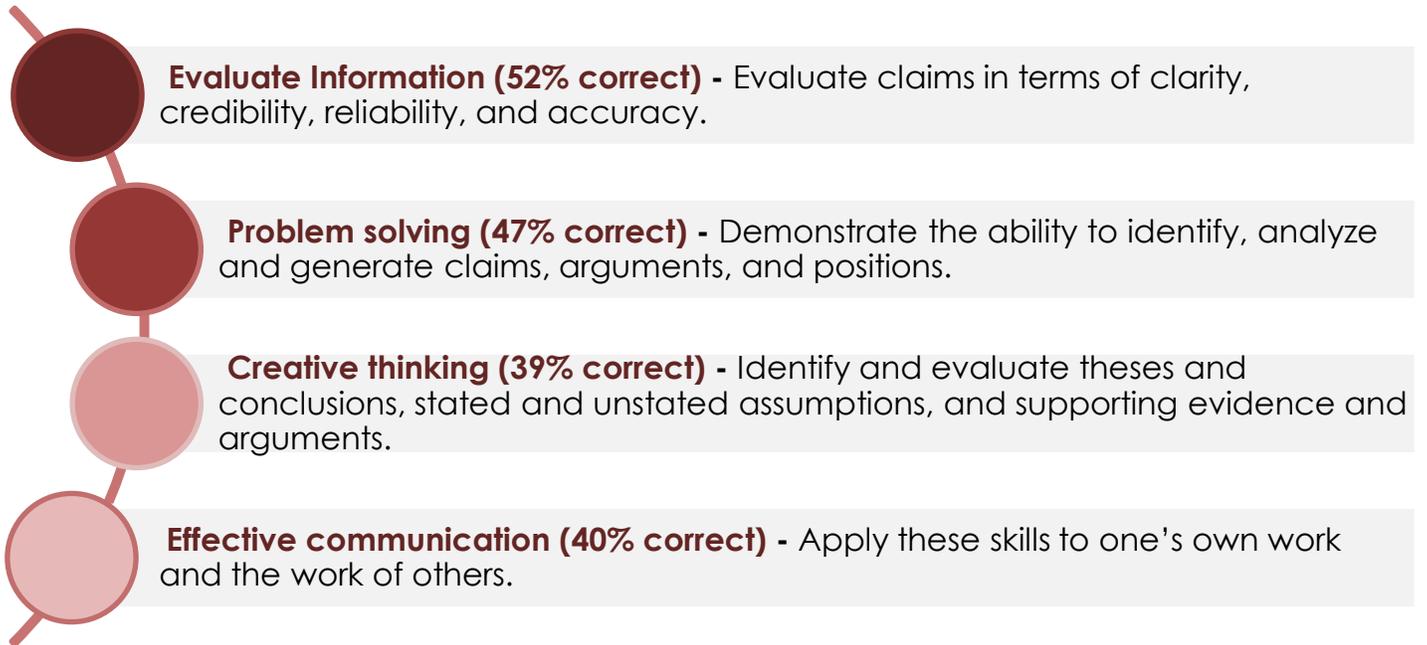
Perhaps it is kinder to say, that different disciplines regard CT skill development so differently that it is impossible to compare students who take different versions of a CT course.

Currently, Cluster One uses a nationally available Critical-Thinking Assessment Test (CAT) to evaluate student learning. And, in the same way we don't agree on what CT is, we also don't agree on demonstration of CT skill. This creates a noticeable lack of investment in the assessment results. Until and unless the assessment results fall on ears that intend to do something with these results, we are largely working to meet an assessment mandate and not programmatically using results to improve student learning.

The CAT is a 15-item open-ended performance assessment rated by faculty who participate in a day-long train-the-trainer rating session. In addition to information about student learning, the process provides opportunities for faculty members to directly encounter and discuss students' performance on the test. Though given the opportunity to participate in the rating, most CT faculty do not take advantage. We can only speculate why – varying disciplinary perspectives, lack of relevance of the assessment findings, or other. While 20% of the critical thinking faculty served as raters over the past three years, we strongly encourage more CT faculty to participate in order to make the results meaningful in individual courses.

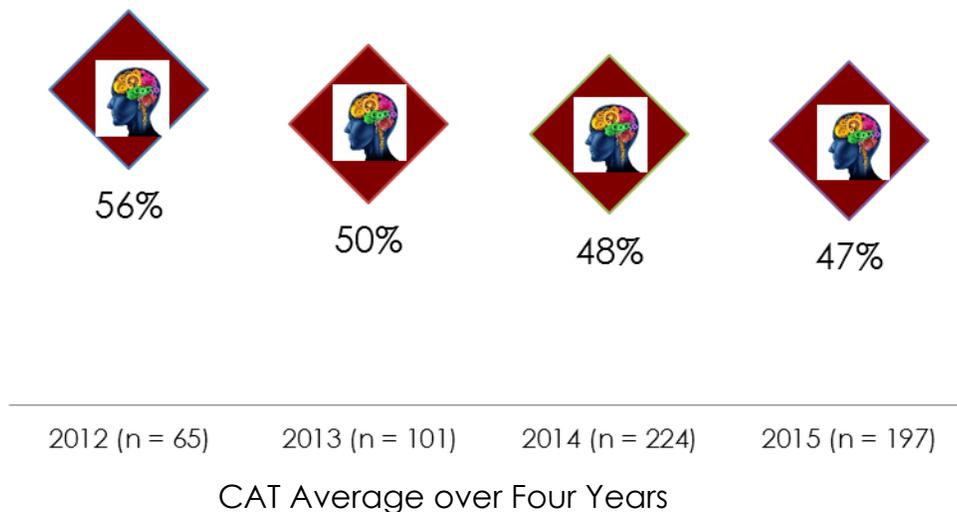


Cluster One Skills Performance By Objectives



The JMU critical thinking student learning objectives have not changed since 1998. Attempting to align an externally-developed critical thinking instrument to our internally-developed learning objectives is challenging. The four main CAT skill areas loosely align with the four JMU critical thinking objectives. The skills in the above graph are sorted in descending order of student competency. One result of the loose alignment is that it makes create relevance more difficult. When the scores are presented sorted by course and skill, faculty consistently report that they do not know what to make of the results.

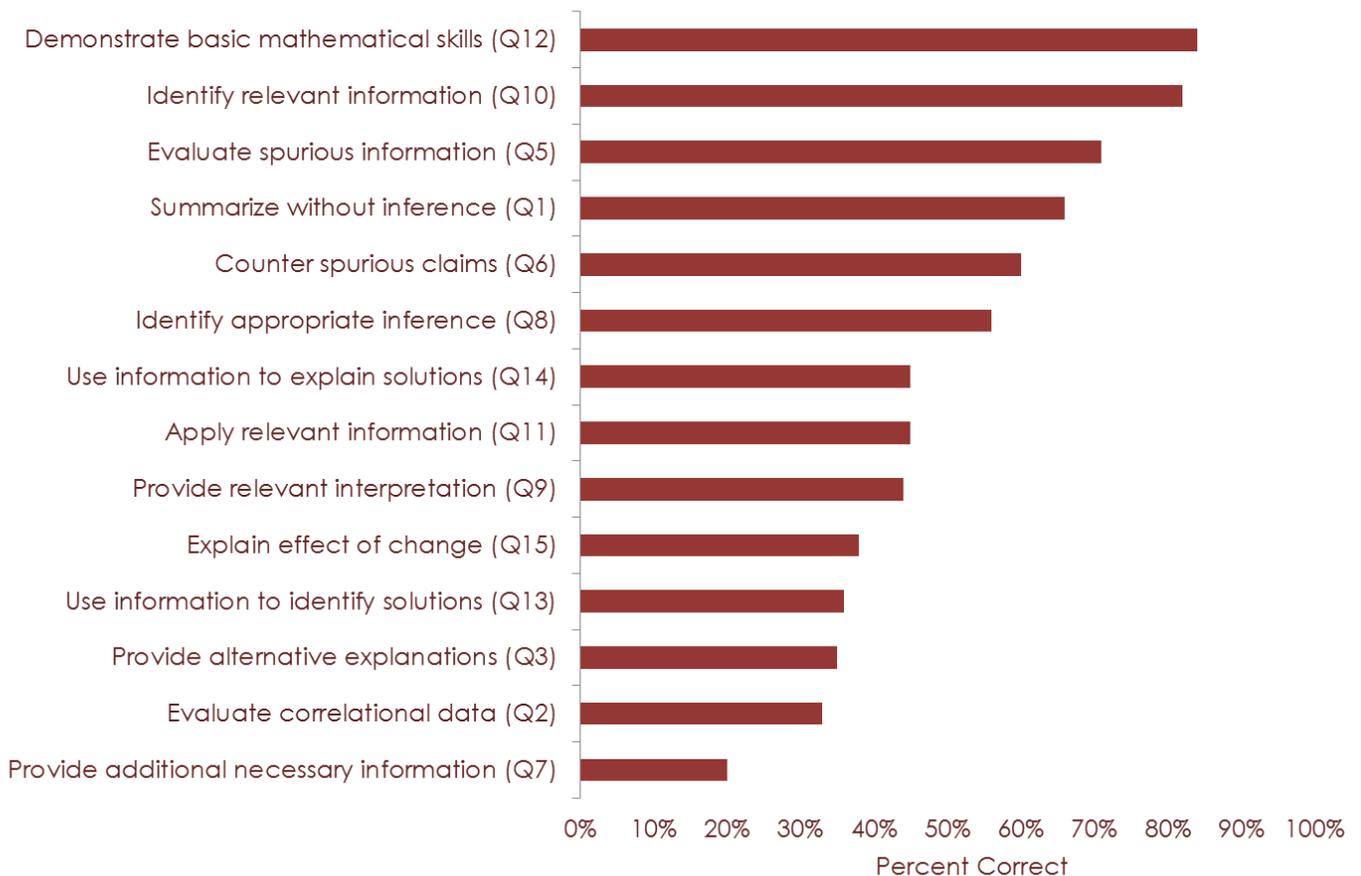
How stable are JMU CAT scores across cohorts?



Over the past four years, in response to validity feedback from Tennessee Tech, rating rigor has increased, which is one rival explanation for the slight decline in percent correct across the four years. Nonetheless, scores have remained fairly stable.

How did JMU students perform on the CAT competencies?

Spring 2015

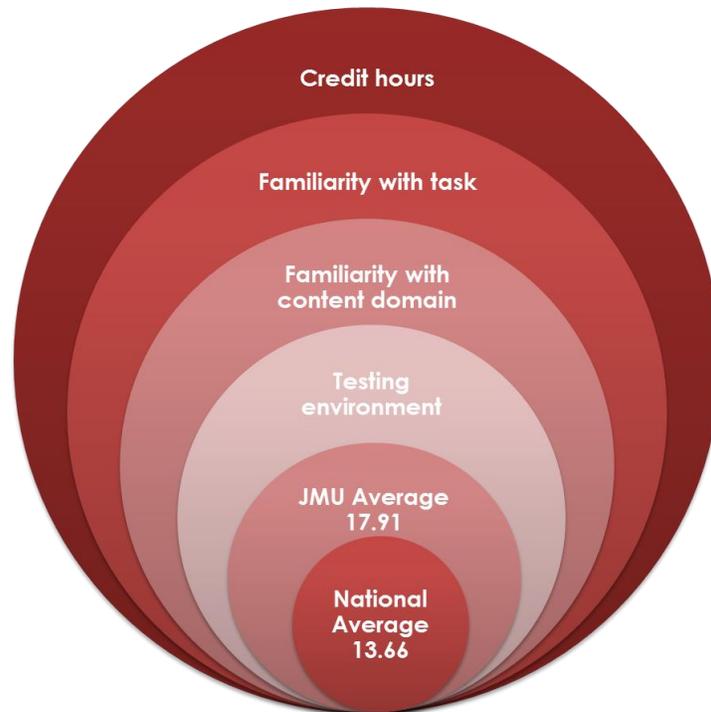


Note: One item was redundant and not included on the above graph.

The 15 open-ended CAT questions address skills that can be directly mapped to the Cluster One learning objectives. The above graph portrays JMU students' percent correct on 14 of the 15 skills, sorted in descending order. For example, students scored highest on questions that asked them to identify relevant information related to a scenario, and a basic mathematics problem situated in a real world context. Students were most challenged by questions requiring them to provide additional necessary information when making a data-based decision and to evaluate correlational data. Although across years we might see some fluctuation in rank order of student competencies, those competencies that are strengths remain strengths. Those that are challenging remain challenging.

When CAT scores are compared across JMU critical-thinking courses, completers and non-completers, scores are all within 1 standard deviation of the overall average for each item.

How do JMU CAT scores compare to national averages?



Putting CAT Scores in Context

Although the JMU average is higher than the national average, there are numerous contextual factors that need to be acknowledged. JMU CAT completers were between 45-70 credit hours, whereas the national cohort was between 0-60 credit hours. There may also be differences in the familiarity with the task. For example, in the 2014 JMU student focus group, students reported discomfort with the open-ended nature of the task. Moreover, the current version of the CAT has a high focus on scientific rather than humanities content. The JMU students completed the CAT within a low-stakes setting, whereas the national cohort completed the CAT under a variety of stakes.

Behavioral assessment is expensive. Because it is a national test, the CAT has costs at both the acquisition level (\$10 per test) and the application level (\$150 per day per faculty rater). Given the expense, we continue to carefully consider the balancing act between the expense of the test and faculty investment in the findings.

In spite of the fact that the CAT is not a perfect fit for critical thinking at JMU, it offers opportunities that were not available in previous critical thinking assessments. Unlike selected-response assessments, the CAT requires close faculty scrutiny of student-constructed responses. Moreover, the CAT rating process provides a forum for faculty discussion and professional development that faculty members report influencing their own pedagogy at JMU. Ownership of CAT results remains a challenge. Faculty do not see the relevance or connection of results to their individual classes. Until we can build a culture of ownership of the learning outcomes (instead of course content), this will continue to be a problem.

How can we improve?

The Cluster One committee will spend time during the 2016-2017 academic year considering the appropriateness of three potential changes.

Change in test environment

- JMU-built test
- Embedded assessment

Change in course sequencing

- Offer to juniors, rather than first-year students
- Prerequisite course prior to critical thinking course

Change in critical-thinking learning outcomes

- Align the learning outcomes with assessment methods
- Add student learning objectives
 - Civic-engagement
 - Diversity
 - Sustainability



Students who completed Cluster 1 scored the same on the CAT as non-completers in all skill areas and on the total score.

Summer 2015 Integrative Course Summer Grant

Cluster One would like to take this opportunity to thank the General Education program for supporting the development of a junior-level integrative course (UNST 390), which piloted during spring 2016. This course was designed to meet the learning objectives of the critical thinking area of Cluster One and a set of integrative learning objectives drawn from the remaining clusters. The course was the first 300 level offering in the program. Although only five students enrolled in the course, the pilot served to demonstrate the effectiveness and appropriateness of this approach to attaining critical thinking skills.

Student work product was evaluated utilizing the Integrative Critical Thinking Rubric, which may be found on the next page. This rubric provided formative feedback to students and provided clarification of desired student competencies. This rubric is freely available to JMU faculty, students, and the public on the JMU CARS website.

JMU General Education Integrative Critical Thinking Rubric

	Advanced 4	Competent 3	Developing 2	Unsatisfactory 1
Engages complex questions <i>Addresses complex issues, ideas, objects, or events</i>	Sophisticated explanation of an issue or problem that is relevant, accurate, clear, and specific.	Explanation of an issue or problem that shows adequate evidence of relevancy, accuracy, clarity, and specificity.	Limited explanation of an issue or problem that is irrelevant, inaccurate, unclear, or unspecific.	Lacks an explanation of an issue or problem.
Information literacy skills <i>Locates, selects, and uses information to investigate multiple disciplinary perspectives</i>	Includes a significant number of sources that are relevant, credible, integrative, and purposeful. Information resources are evaluated based on the information need and the context in which the information will be used. Alternative viewpoints are thoroughly explored.	Includes an adequate number of sources that are relevant, credible, integrative, or purposeful. Information is taken from sources with enough interpretation/evaluation to develop a coherent analysis or synthesis. Alternative viewpoints are considered.	Includes limited sources that may not always be relevant, credible, integrative, or purposeful. Information is taken from sources with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Alternative viewpoints are acknowledged/mentioned.	Lacks appropriate sources. Information is taken from sources without any interpretation/evaluation. Alternative viewpoints are not considered.
Multiple disciplinary perspectives <i>In the context of a disciplinary perspective, demonstrates an understanding of broader general education issues, ideas, objects, or events - past and present.</i>	Provides significant, sophisticated, and imaginative integration of both disciplinary and general education perspectives.	Provides adequate integration of both disciplinary and general education perspectives.	Provides limited integration of disciplinary and general education perspectives.	Includes no integration of disciplinary and general education perspectives.
Conclusions, implications, and consequences <i>Includes an analysis and evaluation of pros, cons, and compromises. Opposing viewpoints and alternatives are explored and summarized.</i>	Consistently demonstrates superior knowledge and/or performance. Reflects logical scrutiny of the issue or problem. Clearly articulates the arguments made.	Demonstrates average or adequate knowledge and/or performance. Reflects logical scrutiny of the issue or problem. Articulates an argument.	Demonstrates limited knowledge and awareness of the issue or problem. Lacks a clear argument. With additional effort, competence may be attainable.	Lacks knowledge and awareness of the issue or problem. No argument or an illogical argument provided.

Enrollment Figures

5 departments offered 4919 seats in critical thinking during the 2015-2016 academic year.

JMU students utilized 94.8% of those seats.

Students in honors sections utilized 65.5% of the available seats.

Of available seats, 305 were not filled.

263 continuing JMU students failed to meet the requirement.

Coming Soon

During summer 2016

- The CAT rubric will be evaluated in terms of logic, consistency, and alignment with critical thinking course material.
- Critical thinking faculty member, Bill Knorpp, will be writing critical thinking selected-response items that will be piloted on the MREST. Concern about the expense of the CAT, consistency, and alignment between the test and JMU critical thinking student learning objectives are driving forces for these efforts.

During fall 2016

- The general education program should consider including the UNST 390 critical thinking pilot course for spring 2017.
- First-year student CAT scores will be collected on Assessment Day. Previous CAT administrations have been with sophomores only. Cluster One would like to compare the critical thinking skills of entering first-year students to sophomores. Although we do get a comparison to the national average, we do not know how our students perform upon entrance to JMU. Any arguments about critical thinking skills being simply due to maturation cannot be ruled out without both pieces of information.
- Madison Collaborative may join Cluster One in using the CAT as ethical reasoning validity evidence.

Critical thinking is one area of interest to the AACU Multi-State Collaborative. Cluster One is open to examining what this means for JMU.