CRITICAL THINKING
Creating Relevance
Using Assessment Results

Critical Thinking

Writing

Human Communication

INFORMATION LITERACY
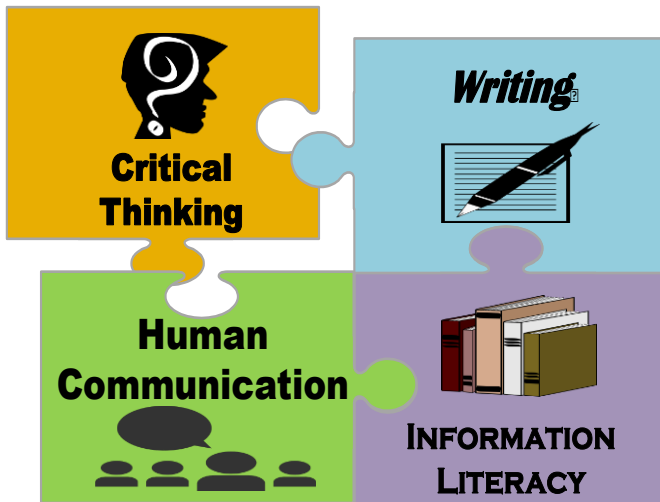
CLUSTER ONE: Foundations For Tomorrow

Cluster One uses a nationally available Critical-Thinking Assessment Test (CAT) to evaluate student learning.

The CAT is a 15-item open-ended performance assessment, to which students respond to scenarios and questions about real-world scenarios and graphical information. During February 2014 JMU Assessment Day, 232 Sophomore-Junior students (45-70 credits) completed the CAT.

The CAT is 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.
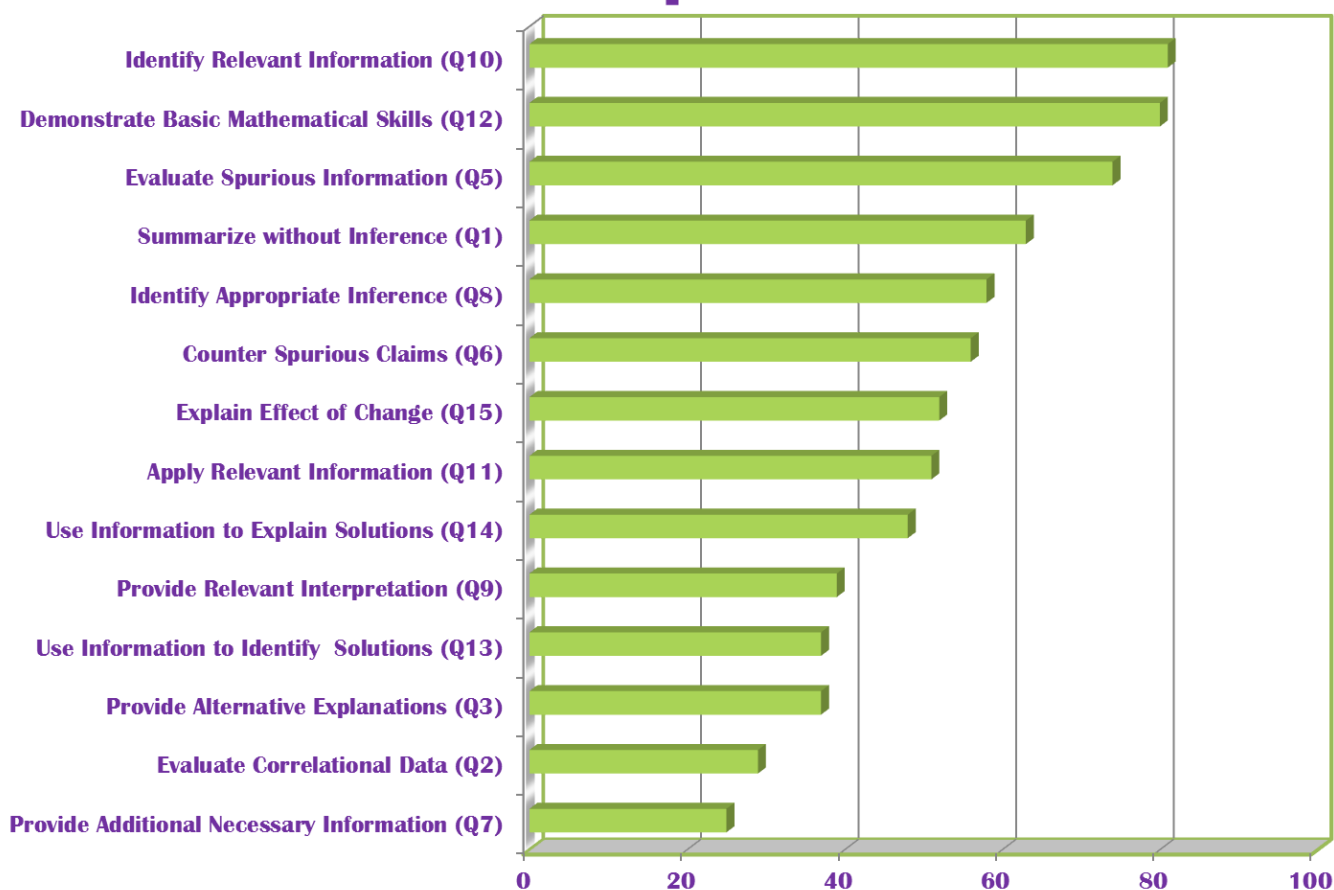
Critical Thinking Objectives

- Evaluate claims in terms of their clarity, credibility, reliability, and accuracy.

- Demonstrate the ability to identify, analyze and generate claims, arguments and positions.

- Apply these skills to one's own work and the work of others.

- Identify and evaluate theses and conclusions, stated and unstated assumptions, and supporting evidence and arguments.

How did JMU students perform on the CAT competencies?

Competency	Percent
Identify Relevant Information (Q10)	~82
Demonstrate Basic Mathematical Skills (Q12)	~81
Evaluate Spurious Information (Q5)	~75
Summarize without Inference (Q1)	~64
Identify Appropriate Inference (Q8)	~59
Counter Spurious Claims (Q6)	~57
Explain Effect of Change (Q15)	~53
Apply Relevant Information (Q11)	~52
Use Information to Explain Solutions (Q14)	~49
Provide Relevant Interpretation (Q9)	~40
Use Information to Identify Solutions (Q13)	~38
Provide Alternative Explanations (Q3)	~38
Evaluate Correlational Data (Q2)	~30
Provide Additional Necessary Information (Q7)	~26

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[1]. For example, students scored highest on the question that asked them to identify relevant information related to a scenario. JMU students also performed well on 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.

> ## Interested in learning more about these competencies?
> ## Join us in a CAT rating session.


[1] One item was redundant and not included on the above graph.

Course grades in *Human Communication (r = .23 to .54)* and *Writing (r = .17)* significantly predicted CAT scores

Do Cluster One course grades relate to students' CAT scores?

Does the effort students put forth on the CAT relate to their scores on the test? Yes.

Students' self-reported effort for the A-day testing session significantly correlated with CAT scores *(r = .23).*
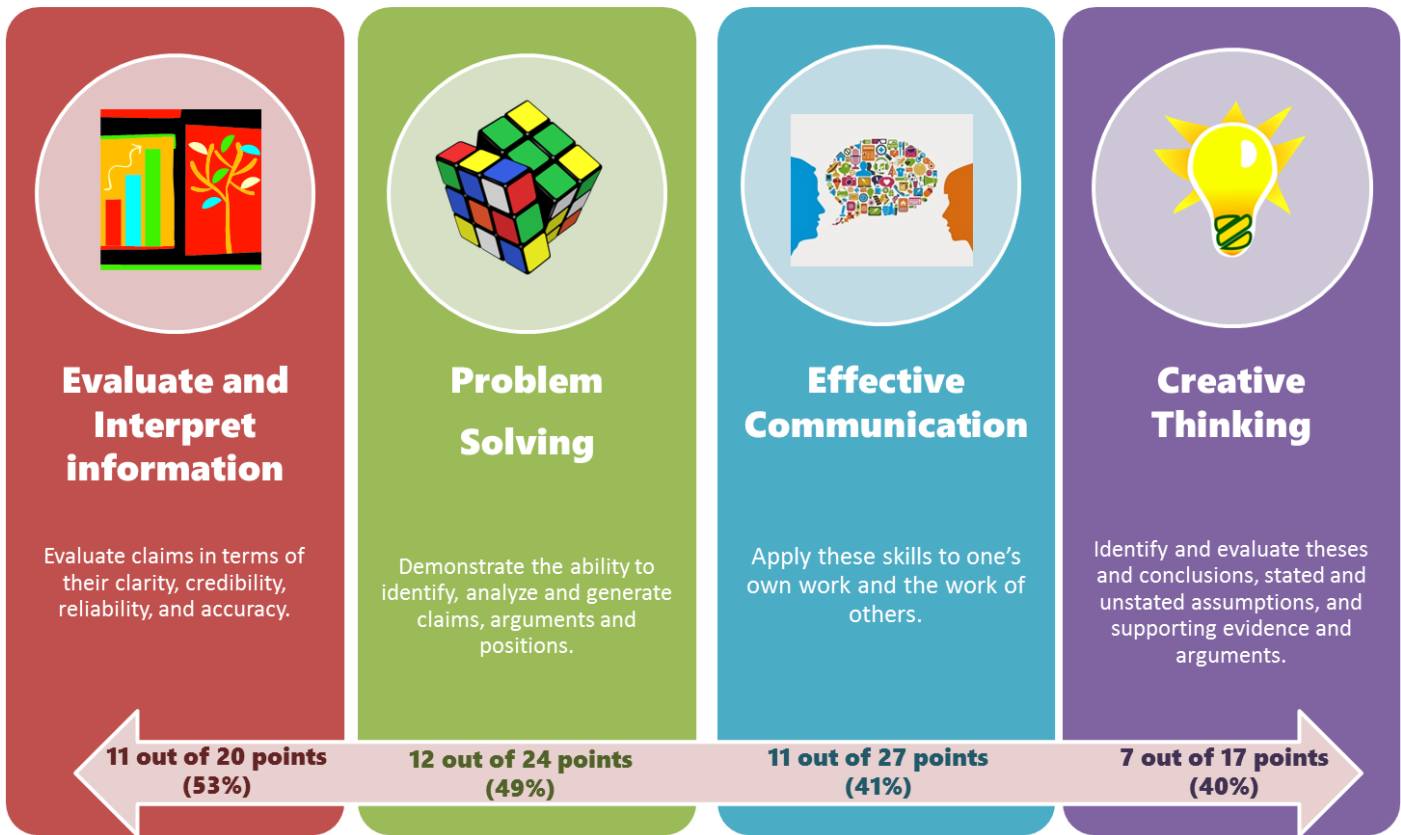
How does JMU compare?

0   5   10   15   20   25   30   35

National 0–60 hrs

JMU 45–70 hrs

National >61 hrs
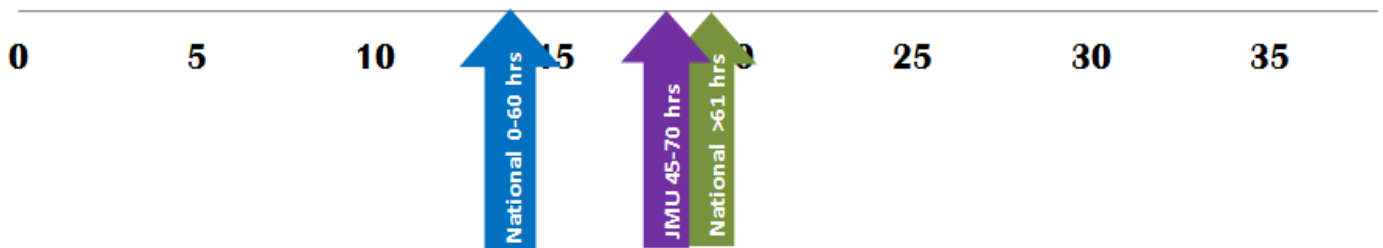
We might be disappointed that out of a possible 38 points,
JMU averaged 18.3 points (48% correct).

Don't be disheartened.
JMU students are performing above national average for their class level.

Skill Areas

Evaluate and Interpret information	Problem Solving	Effective Communication	Creative Thinking
Evaluate claims in terms of their clarity, credibility, reliability, and accuracy.	Demonstrate the ability to identify, analyze and generate claims, arguments and positions.	Apply these skills to one's own work and the work of others.	Identify and evaluate theses and conclusions, stated and unstated assumptions, and supporting evidence and arguments.
11 out of 20 points (53%)	**12 out of 24 points (49%)**	**11 out of 27 points (41%)**	**7 out of 17 points (40%)**

Brought to you by JMU General Education: Cluster One

Students who completed Cluster One requirements outperformed non-completers in two CAT summary skill areas.

Creative Thinking

&

Effective Communication

How do JMU students perform by skill areas? JMU students' ratings are reported by skill area, above. Each skill area maps to the JMU Critical Thinking objectives. Note that students attained the most points related to the JMU objective "Evaluate claims in terms of their clarity, credibility, reliability, and accuracy." Most challenging were the questions related to the JMU objective "Identify and evaluate theses and conclusions, stated and unstated assumptions, and supporting evidence and arguments."

What do students say?

What are critical thinking skills?

- See situations from every point of view
- Defend a position, and don't attack others' positions
- Be subjective and objective at the same time
- Answer the "why" part of a question
- Be OK with not having a clear answer
- Identify certain argumentative forms
- Being able to dissect and analyze a topic and subject you're referring to.
- Get to the root of the issue
- Process – not just minimally – make decisions
- Use information to answer a question
- Go hand in hand with problem solving

Ten sophomore-juniors (six females and 4 males) participated in a focus group during spring 2014 Assessment Day. Cluster One courses completed by the students were representative of the breadth of Cluster One courses (GBUS $n = 2$; GWRIT $n = 6$; GHIST $n = 2$; GPHIL Ethical Reasoning $n = 3$; GPHIL Logic and Syllogisms; $n = 1$; and there was one transfer student). Eight of the ten participants had completed their GCOM course.

The focus groups helped us understand the student experience of taking the test. We were also interested in understanding whether the CAT items aligned well with Cluster One objectives and Cluster One course work. In this sense, the focus groups provided validity evidence for inferences that we draw from the CAT scores.

It took a lot of critical thinking….

It's more stressful than the typical multiple choice (4 out of 6)

I had to think backwards

I had to think harder. It wanted me to reason.

It forced me to think.

How can we best use the CAT findings to promote JMU student critical thinking?

For examples of assignments to promote critical-thinking competencies, contact the Cluster One Coordinator.