Critical Reasoning Competency

ASSESSMENT BRIEF UPDATE

2015 TO 2018

Updated annually by Faculty Senate AOAC, General Education Coordinator, CAE, and Planning, Assessment, & Analysis
Students will demonstrate foundational knowledge of the important ideas and methods of different ways of knowing as follows:

i. Courses in the **arts and humanities (G1 category)** challenge students to examine, analyze and critically evaluate artifacts of the human intellect and imagination to illuminate the complexity of the human experience. Through exposure to multiple voices, insights, objects, and other creative works, students explore and interpret questions of meaning, fact and value. Ultimately, this engagement expands knowledge, deepens empathy and encourages collaboration between diverse individuals and communities.

ii. Courses in the **sciences and mathematics (G2 category)** develop students’ understanding and knowledge of scientific and mathematical reasoning and of strategies for logical problem solving. Students are challenged to recognize that scientific explanations offer falsifiable predictions, that claims must be supported by evidence and logical reasoning, and that the nature of scientific discovery and knowledge is fluid.

iii. Courses in the **social sciences (G3 category)** focus on the intricate relationship between Academic Program: Undergraduate Studies General Education Program Page 4 of 13 human behavior and social institutions. Through qualitative and/or quantitative methods of inquiry, students discover and ascertain how human beings behave and are expected to behave, within certain contexts. This interaction allows students to comprehend and articulate the relationship between behavior and context across people, cultures, time, and place.
How is Critical Reasoning Assessed?

In the general education program, Critical Reasoning is assessed by both direct and indirect evidence.

<table>
<thead>
<tr>
<th>Measures</th>
<th>2015-16</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Reasoning Rubric</td>
<td>165 student artifacts</td>
<td>109 student artifacts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower division courses</td>
<td>ESCI 222, HIST 105, SOWK 102, UNIV 103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper division courses</td>
<td>BIOL 462, BIOL 467, ESCI 328, ESCI 443, HIST 406, HUMN 380, PSYC 311, SOWK 322, SOWK 431</td>
<td></td>
<td>Being collected</td>
<td></td>
</tr>
<tr>
<td>National Survey of Student Engagement</td>
<td>not collected</td>
<td>305 First-Years 395 Seniors</td>
<td>not collected</td>
<td>Being collected</td>
</tr>
<tr>
<td>Senior Exit Survey</td>
<td>917 seniors</td>
<td>930 seniors</td>
<td>847 seniors</td>
<td>Being collected</td>
</tr>
<tr>
<td>Alumni Job Placement Survey (~1 yr out)</td>
<td>747 alumni</td>
<td>620 alumni</td>
<td>689 alumni</td>
<td>To be collected fall 2019</td>
</tr>
<tr>
<td>Internship Field Supervisor Feedback</td>
<td>340 students</td>
<td>336 students</td>
<td>338 students</td>
<td>Being collected</td>
</tr>
</tbody>
</table>
Comparison of Freshmen and Senior Perceptions of Critical Reasoning

[Experience contributed to your knowledge, skills, and personal development where 1=Very little, 2=Some, 3=Quite a bit, 4=Very much]

FIRST-YEAR STUDENTS

<table>
<thead>
<tr>
<th></th>
<th>2013 (n=326)</th>
<th>2014 (n=378)</th>
<th>2015 (n=325)</th>
<th>2017 (n=305)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MU</td>
<td>3.1</td>
<td>3.0</td>
<td>3.0</td>
<td>3.1</td>
</tr>
<tr>
<td>PASSHE</td>
<td>3.1</td>
<td>3.0</td>
<td>3.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Master's</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>NSSE All</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

SENIORS

<table>
<thead>
<tr>
<th></th>
<th>2013 (n=462)</th>
<th>2014 (n=525)</th>
<th>2015 (n=471)</th>
<th>2017 (n=395)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MU</td>
<td>3.3</td>
<td>3.4</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>PASSHE</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Master's</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>NSSE All</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
</tbody>
</table>

NOTE: Per National Survey of Student Engagement offered respective spring semesters. Master’s includes peers at Master’s-level publics and privates (per Carnegie Classification). National includes all peers at all four-year institutions participating during the time period.
Comparison of Freshmen and Senior Perceptions of Critical Reasoning

[Experience contributed to your knowledge, skills, and personal development where 1=Very little, 2=Some, 3=Quite a bit, 4=Very much]

FIRST-YEAR STUDENTS

MU 2.6 2.6 2.5 2.7
PASSHE 2.6 2.6 2.6 2.6
Master's 2.7 2.6 2.6 2.6
NSSE All 2.6 2.6 2.6 2.6

SENIORS

MU 2.7 2.9 2.8 2.8
PASSHE 2.8 2.8 2.8 2.8
Master's 2.8 2.8 2.8 2.8
NSSE All 2.8 2.8 2.8 2.8

NOTE: Per National Survey of Student Engagement offered respective spring semesters. Master’s includes peers at Master’s-level publics and privates (per Carnegie Classification). National includes all peers at all four-year institutions participating during the time period.
Comparison of Senior & Alumni *Perceptions* of Critical Reasoning

[Experience contributed to your knowledge, skills, and personal development where 1=Very little, 2=Some, 3=Quite a bit, 4=Very much]

**SENIORS AT GRADUATION**

<table>
<thead>
<tr>
<th>Year</th>
<th>2015-16 (n=817)</th>
<th>2016-17 (n=930)</th>
<th>2017-18 (n=847)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking critically and analytically</td>
<td>3.41</td>
<td>3.38</td>
<td>3.43</td>
</tr>
</tbody>
</table>

**ALUMNI 6 TO 10 MONTHS OUT**

<table>
<thead>
<tr>
<th>Year</th>
<th>2015-16 (n=747)</th>
<th>2016-17 (n=620)</th>
<th>2017-18 (n=689)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking critically and analytically</td>
<td>3.34</td>
<td>3.34</td>
<td>3.37</td>
</tr>
</tbody>
</table>

[Senior perceptions per Senior Exit Survey administered last two weeks before commencement.]

[Alumni perceptions per Alumni Job Placement Survey administered about six to ten months after commencement.]
Internship Field Supervisor *Feedback* on Critical Reasoning

**The student is able to make effective decisions, analyze issues and overcome problems.**

*Percent scoring 5 & 4, where 5=Definitely, 3=Somewhat, and 1=Not at all*

<table>
<thead>
<tr>
<th>Year</th>
<th>2015-16 (n=340)</th>
<th>2016-17 (n=336)</th>
<th>2017-18 (n=338)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>92.7%</td>
<td>85.5%</td>
<td>93.3%</td>
</tr>
</tbody>
</table>

**Evaluation of student career-readiness for critical thinking /problem-solving skills.**

*Percent scoring 5 & 4, where 5=Excellent, 3=Fair, and 1=Unacceptable*

<table>
<thead>
<tr>
<th>Year</th>
<th>2015-16 (n=340)</th>
<th>2016-17 (n=336)</th>
<th>2017-18 (n=338)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>89.3%</td>
<td>89.1%</td>
<td>90.0%</td>
</tr>
</tbody>
</table>
Student Performance per Critical Thinking Rubric
(where 4=advanced; 3=Proficient; 2=Basic; 1=Minimal, 0=Not evident/Deficient)

Overall Mean Scores: 1XX=1.90, 2XX=2.02, 3XX=2.44, 4XX=2.80
EXECUTIVES identification of gaps in recent graduates’ preparedness on key learning outcomes. [National Survey]

Among business execs:

- Critical thinking/analytical reasoning
- Apply knowledge/skills to real world
- Communicate effectively in writing
- Self-motivated
- Communicate effectively orally
- Able to work independently
- Able to work effectively in teams
- Ethical judgment/decision-making
- Able to analyze/solve complex problems
- Find, organize, evaluate info: multiple sources
- Solve problems w/people of diff. backgrounds
- Able to innovate/be creative
- Able to work with numbers/stats
- Stay current on changing tech
- Proficiency in foreign language

Hiring managers identification of gaps in recent graduates’ preparedness on key learning outcomes. [National Survey]

Among hiring managers:

- Apply knowledge/skills to real world
- Self-motivated
- Communicate effectively orally
- Critical thinking/analytical reasoning
  - Able to work independently
  - Ethical judgment/decision-making
  - Able to work effectively in teams
- Able to analyze/solve complex problems
- Communicate effectively in writing
- Find, organize, evaluate info: multiple sources
- Solve problems w/people of diff. backgrounds
  - Able to innovate/be creative
  - Stay current on changing tech
  - Able to work with numbers/stats
  - Proficiency in foreign language

* 8-10 ratings on a 0-to-10 scale

Prepared Gap

- Recent college grads well prepared*
- Very important quality*

[Hiring Managers: Identification of Gaps in Recent Graduates' Preparedness on Key Learning Outcomes: 2018 Employers Survey*Hart Research]

In your small group, discuss the follow:

1) What does the evidence demonstrate?
   - Does the assessment evidence presented demonstrate added value? How?
   - Are students gaining skills as presented in these results?

2) Are you satisfied with results?
   - If so, what learning experiences contribute to the achievement of the competency?
   - If not, how might we make improvements to the learning experiences?

3) Share highlights of your discussion with the larger group.