

# Critical Thinking and Quantitative Reasoning

ZU graduates will be able to demonstrate competence in understanding, evaluating, and using both qualitative and quantitative information to explore issues, solve problems, and develop informed opinions.

Indicator	Criteria	L E V E L			
		Beginning	Developing	Accomplished	Exemplary
1. Identify essential information	1.1. Identify relevant qualitative and quantitative information from a given situation	Shows basic understanding of issue/problem by identifying or stating some relevant information, but without adequate clarification or description	Shows understanding of issue/problem but leaves some ambiguities and some terms undefined	Shows enhanced understanding of issue/problem and clearly defines parameters for problem solving	Shows comprehensive understanding of issue/problem and precise selection of methodology and data required
2. Interpret both qualitative and quantitative information	2.1. Organize into usable information	Limited ability to interpret or evaluate information	Some ability to accurately interpret or evaluate information	Thorough ability to accurately interpret or evaluate complex information	Skillful ability to accurately interpret or evaluate complex information and draw inferences based on the information
	2.2. Utilize analytical thinking, critical reasoning skills to examine multiple perspectives and solve challenging problems	Begins to recognize own assumptions, but in a simplistic way, and all sources of information accepted as fact, without question	Can explain own assumptions and recognizes more than one perspective, but sources still largely accepted as fact	Explicitly describes own assumptions and multiple perspectives, and can articulate rationale based on evidence which has been evaluated	Explicitly describes multiple perspectives while confidently providing evidence based reason to come to a conclusion
	2.3. Logical deductions	Deductions based on information might be inadequate or inaccurate or represent only a portion of what is required	Deductions based on information represent are accurate but simplistic, without full understanding	Deductions based on information are sufficiently comprehensive to solve the problem	Deductions based on information are sufficiently comprehensive to solve the problem and are cogently presented

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<b>3. Formulate reasoned conclusions</b>	<b>3.1. Reflect, assess and improve thinking or results of thinking by giving reasons for beliefs, hypotheses, assumptions and conclusions</b>	Draws conclusions, but some may be inadequate or incorrectly linked to information or data	Basic and unnuanced use of data to draw plausible conclusions	Confident and appropriate use of data to draw reasonable and competent conclusions	Deep and thoughtful use of data to form insightful, original and carefully qualified conclusions
	<b>3.2. Communicate through written, spoken, visual, symbolic presentations</b>	Presents data and conclusions in limited formats	Presents data and conclusions in multiple formats	Typically presents data and conclusions in the appropriate formats	Consistently presents data and conclusions in formats most appropriate to the context
<b>4. Transfer learned skills and knowledge to new contexts</b>	<b>4.1. Apply learned skills, modes of inquiry and information to new areas or real-world issues, problems and situations</b>	Limited ability to apply skills to new issues or problems, with high dependence on the teacher	Ability to apply skills to new issues or problems, with continued guidance from teacher	Independently able to apply skills to new situations or contexts, with some inappropriate choices	Independently able to apply skills to new situations or contexts, demonstrating appropriate use of evidence and reason in all contexts

Able to extract/utilize information from a limited variety of sources