University of La Verne
Quantitative Reasoning Rubric
Draft 12/14/10

Learning Outcomes	**Accomplished (4)** Accurate and complete or near complete mastery—less than 10% errors in process	**Developed (3)** Competent and proficient—10-20% errors in process	**Developing (2)** Basic skill—20-30% errors in Process	**Undeveloped (1)** Beginning-Below basic skill—greater than 30% errors in process
1. **Represent** mathematical information symbolically, visually, numerically and verbally	**Skillfully converts and represents** relevant information into various mathematical forms or portrayals (e.g. equations, diagrams, graphs, tables, and words) in comprehensible terms that **further or deepen understanding**	**Competently converts and represents** relevant information into various mathematical forms or portrayals (e.g. equations, diagrams, graphs, tables, and words) in mostly appropriate and adequate terms	**Completes conversions** of relevant information into various mathematical forms but resulting portrayals are **only partially appropriate or accurate**	**Completes conversions** of relevant information into various mathematical forms but resulting portrayals are **mostly inappropriate or inaccurate**
2. **Interpret and draw inference** from mathematical models such as formulas, graphs, tables, and schematics	Provides **accurate explanations** of information presented in mathematical forms, and makes **appropriate and insightful inferences** based on that information (e.g. trend data in a graph, and statistical or actuarial significance of findings/data)	Provides **accurate explanations** of information presented in mathematical forms, and **inferences** based on the information are **adequate** (e.g. trend data in a graph, and statistical or actuarial significance of findings/data)	Provides **mostly accurate explanations** of information presented in mathematical forms, and **inferences** based on the information are only **partially adequate**	Provides **partially accurate explanations** of information presented in mathematical forms, and **inferences** based on the information are **inadequate**
3. **Apply** Arithmetical, algebraic, geometric and statistical methods with appropriate technological **tools to solve problems**	**Expertly and accurately** uses arithmetic and algebraic functions with appropriate technological tools to solve problems, and presents calculations **clearly and concisely**	**Accurately** uses arithmetic and algebraic functions with appropriate technological tools to solve problems, and presents calculations **adequately**	**Applies mostly accurate** arithmetic and algebraic functions with appropriate technological tools to solve problems, but presentation of calculations are partially **adequate**	**Applies Partially accurate** arithmetic and algebraic functions with mostly appropriate technological tools to solve problems, but presentation of calculations are **inadequate**
4. **Think critically** and apply common sense in estimating and **checking answers** to mathematical problems in order to determine reasonableness, identify alternatives, and **select optimal results**	**Expertly and accurately** uses critical thinking and common sense to **check and verify** the reasonableness and appropriateness of the final answers, identifies alternatives, and selects **optimal results**	**Appropriately** uses critical thinking and common sense to **check and verify** the reasonableness and appropriateness of the final answers, identifies **most** alternatives, and selects **optimal results**	**Occasionally** uses critical thinking and common sense to **check and verify** the reasonableness and appropriateness of the final answers, identifies **few** alternatives, and selects **partially optimal results**	**Does not adequately** use critical thinking and common sense to **check and verify** the reasonableness and appropriateness of the final answers, is **unable** to identify alternatives, and selects **results that are not optimal**