

## Syllabus Review Rubric: *Analytical Reasoning and Problem Solving (ARP)*

**Learning Outcome:** Upon completion of the Carolina Core, students will be able to apply the methods of mathematics, statistics, or analytical reasoning\* to critically evaluate data, solve problems, and effectively communicate findings verbally and graphically.

\*The phrase “analytical reasoning” is used as a generic phrase to include algorithmic, logical, mathematical, and statistical methods across disciplines.”

<b>Student Achievements (as found in the “Appendix”)</b>	<b>Foundational-level Course: Archetypal Syllabus Requirements</b>	<b>Integrative-level Course Syllabus Requirements</b>
<p>Demonstrate understanding and use of the basic principles, concepts, and terms of the discipline</p>	<p><b>Syllabus indicates that the course:</b></p> <ol style="list-style-type: none"> <li>1. Identifies major principles, concepts, and terminology of the discipline</li> <li>2. Includes assessments (such as homework and exams) to evaluate knowledge and application of principles, concepts and terms.</li> </ol>	<p><b>Course fulfills requirements listed for “foundational” courses, but focuses on:</b></p> <ol style="list-style-type: none"> <li>1. Examples showing how application of the principles and fundamental concepts will be applied to solve problems.</li> </ol>
<p>Identify a problem and define associated variables, expressing quantitative relationships among the variables.</p> <p>NOTE: It is not necessary in all cases to explicitly identify variables and quantitative relationships, but this needs to be addressed at a level that this information is discernible by a knowledgeable reader.</p>	<p><b>Syllabus indicates that the course:</b></p> <ol style="list-style-type: none"> <li>1. Contains explicit examples of at least three (3) types of problems that will be solved in this course.</li> <li>2. Includes mathematical (in a broad sense) modeling to define quantitative relationships among the variables.</li> <li>3. Includes assessments (such as homework and exams) reinforcing skills in solving problems involving quantitative relationships among variables.</li> </ol>	<p><b>Course fulfills requirements listed for “foundational” courses, but focuses on:</b></p> <ol style="list-style-type: none"> <li>1. Definition of measurable quantities and</li> <li>2. Development of mathematical models expressing relationships among those quantities.</li> </ol>

<p>Apply basic quantitative methods and analytical reasoning principles to evaluate and solve problems, using appropriate technologies</p>	<p><b>Syllabus indicates that the course:</b></p> <ol style="list-style-type: none"> <li>1. Includes descriptions of quantitative methods and/or analytical reasoning principles used to evaluate and solve problems.</li> <li>2. Explicitly mentions the role of technology in carrying out the quantitative methods and analytical reasoning principles.</li> <li>3. Includes assessments (such as homework and exams) to demonstrate application of methods and appropriate technology.</li> </ol>	<p><b>Course fulfills requirements listed for “foundational” courses, but focuses on:</b></p> <ol style="list-style-type: none"> <li>1. Application of methods and reasoning principles to evaluate and solve problems.</li> </ol>
<p>Evaluate, interpret, and describe data from a variety of sources and in a number of forms (numbers, tables, graphs, and equations).</p> <p>NOTE: Data in this context should be interpreted broadly to include quantitative and qualitative information in a variety of formats.</p>	<p><b>Syllabus for the course:</b></p> <ol style="list-style-type: none"> <li>1. Indicates data/data sources to be explored and how data can be presented.</li> <li>2. Includes homework assignments and exams to demonstrate ability to evaluate, describe and interpret data.</li> </ol>	<p><b>Course fulfills requirements listed for “foundational” courses, but focuses on:</b></p> <ol style="list-style-type: none"> <li>1. Description, evaluation and interpretation of data from a project, multi-step problem, or other similar, assignment within the major discipline</li> </ol>