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| **GER Literacy** | **Learning Outcomes** |
| ***Cultural Literacy*** | 1. Analyze society and culture using the perspective of the humanities, including: (a) communications; (b) ethics; (c) history; (d) literature; (e) philosophy; (f) politics; (g) religion, and (h) the performing and visual arts.
2. Conduct primary and secondary research through: (a) critical reading; (b) data collection; and (c) source evaluation.
3. Compose effective oral and written artifacts through: (a) knowledge of process (i.e., composing process); and (b) knowledge of the conventions of academic and/or professional communication; and (c) rhetorical awareness.
 |
| ***Scientific Literacy*** | 1. Analyze, define, and explain scientific principles, concepts, and mechanisms, principally within the domain of at least one of the following basic sciences: (a) biology; (b) chemistry; or (c) physics.
2. Investigate naturally occurring phenomena in the basic sciences using experimental methods, including: (a) design; (b) execution; (c) analysis; and (d) reporting of findings.
3. Interpret scientific theories and concepts in at least one of the basic sciences in order to engage in the process of scientific deduction and reasoning, including: (a) prediction; (b) hypothesis testing; (c) data interpretation; and (d) empirical assessment.
 |
| ***Quantitative Reasoning*** | 1. Define and explain fundamental principles, concepts, and mechanisms within the domain of mathematics and/or statistics.
2. Apply logical reasoning, problem solving, and inference as informed by the principles of statistics, including: probability; data measurement; distribution; and communication and representation of statistical data.
3. Apply logical reasoning, problem solving, and inference as informed by principles of algebraic analysis, including the foundational tenets of trigonometry and calculus.
 |
| ***Social Science Literacy*** | 1. Identify, articulate, and critically analyze the principles, concepts, theories and/or experiential learning associated with contemporary social science fields, including: (a) anthropology; (b) economics; (c) geography; (d) political science; (e) psychology; (f) sociology; and (g) managerial functions (such as including human resources, organizational behavior, accounting, purchasing and logistics, marketing, technological change and innovation management, entrepreneurship and commercialization of innovations, and project management).
2. Analyze systematically human behavior and/or organizational behavior and strategies using data collected via one or more social science research methodologies. The course content should include one or more of the following methods: (a) accounting and financial records; (b) case studies; (c) content analysis; (d) ethnography; (e) experiments; (f) focus groups; (g) grounded theory; (h) in-depth interviews; (i) network analysis; (j) surveys; (k) textual analysis; (l) thematic analysis; and (m) quantitative analysis.
3. Apply understanding of dynamic social systems, including their formation and the circumstances by which they interact with natural environment and industrial organizations; and are upheld, maintained, and/or altered over time.
 |
| ***Computing Literacy*** | 1. Formulate a problem in various domains in terms of quantified, specified inputs and desired outputs.
2. Design a precise and complete step-by-step solution (algorithm) that produces a desired output from a specified input.
3. Implement a solution to an algorithmic problem using the syntax and semantics of a high-level programming language.
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**CULTURAL LITERACY LEARNING OUTCOMES ASSESSMENT\***

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| **Learning Outcomes\*\*** | **Course Does Not Satisfy***(i.e., outcome is not at all covered or addressed in any meaningful way in the course)* | **Course Satisfies Somewhat***(i.e., outcome is addressed indirectly and is a non-primary area of course content/focus)* | **Course Satisfies Completely***(i.e., outcome is directly addressed throughout the course and is a primary focus of course content)* |
| 1. Analyze society and culture using the perspective of the humanities, including: (a) communications; (b) ethics; (c) history; (d) literature; (e) philosophy; (f) politics; (g) religion; and (h) the performing and visual arts.
 |  |  |  |
| 1. Conduct primary and secondary research through: (a) critical reading; (b) data collection; and (c) source evaluation.
 |  |  |  |
| 1. Compose effective oral and written artifacts through: (a) knowledge of process (i.e., composing process); (b) knowledge of the conventions of academic and/or professional communication; and (c) rhetorical awareness.
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**INSTRUCTIONS: A new course must satisfy completely at least two-thirds of the core learning outcomes for the literacy to be a GER course.**

\*The Cultural Literacy is demonstrated throughout an undergraduate’s four years. Therefore, courses throughout the program will ask for different levels of critical thinking and subject matter expertise. Early GER courses center on students’ *knowledge, comprehension, application, and analysis* of course concepts, while senior seminars require the *synthesis and evaluation* of those concepts.

\*\*Learning outcomes conform to Bloom’s *Taxonomy of Educational Objectives.*

**SCIENTIC LITERACY LEARNING OUTCOMES ASSESSMENT**

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| **Learning Outcomes\*** | **Course Does Not Satisfy***(i.e., outcome is not at all covered or addressed in any meaningful way in the course)* | **Course Satisfies Somewhat***(i.e., outcome is addressed indirectly and is a non-primary area of course content/focus)* | **Course Satisfies Completely***(i.e., outcome is directly addressed throughout the course and is a primary focus of course content)* |
| 1. Analyze, define, and explain scientific principles, concepts, and mechanisms, principally within the domain of at least one of the following basic sciences: (a) biology; (b) chemistry; or (c) physics.\*\*
 |  |  |  |
| 1. Investigate naturally occurring phenomena in the basic sciences using experimental methods, including: (a) design; (b) execution; (c) analysis; and (d) reporting of findings.
 |  |  |  |
| 1. Interpret scientific theories and concepts in at least one of the basic sciences in order to engage in the process of scientific deduction and reasoning, including: (a) prediction; (b) hypothesis testing; (c) data interpretation; and (d) empirical assessment.
 |  |  |  |

**INSTRUCTIONS: A new course must satisfy completely at least two-thirds of the core learning outcomes for the literacy to be a GER course.**

\*Learning outcomes conform to Bloom’s *Taxonomy of Educational Objectives.*

\*\*Domains are referring to the Classification of Instructional Program by the US Department of Education.

**QUANTITATIVE REASONING LEARNING OUTCOMES ASSESSMENT**

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| **Learning Outcomes\*** | **Course Does Not Satisfy***(i.e., outcome is not at all covered or addressed in any meaningful way in the course)* | **Course Satisfies Somewhat***(i.e., outcome is addressed indirectly and is a non-primary area of course content/focus)* | **Course Satisfies Completely***(i.e., outcome is directly addressed throughout the course and is a primary focus of course content)* |
| 1. Define and explain fundamental principles, concepts, and mechanisms within the domain of mathematics and/or statistics.\*\*
 |  |  |  |
| 1. Apply logical reasoning, problem solving, and inference as informed by the principles of statistics, including: probability; data measurement; distribution; and communication and representation of statistical data.
 |  |  |  |
| 1. Apply logical reasoning, problem solving, and inference as informed by principles of algebraic analysis, including the foundational tenets of trigonometry and calculus.
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**INSTRUCTIONS: A new course must satisfy completely at least two-thirds of the core learning outcomes for the literacy to be a GER course.**

\*Learning outcomes conform to Bloom’s *Taxonomy of Educational Objectives.*

\*\*Domains are referring to the Classification of Instructional Program by the US Department of Education.

**SOCIAL SCIENCE LITERACY LEARNING OUTCOMES ASSESSMENT**

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| **Learning Outcomes\*** | **Course Does Not Satisfy***(i.e., outcome is not at all covered or addressed in any meaningful way in the course)* | **Course Satisfies Somewhat***(i.e., outcome is addressed indirectly and is a non-primary area of course content/focus)* | **Course Satisfies Completely***(i.e., outcome is directly addressed throughout the course and is a primary focus of course content)* |
| 1. Identify, articulate, and critically analyze the principles, concepts, theories and/or experiential learning associated with contemporary social science fields, including: (a) anthropology; (b) economics; (c) geography; (d) political science; (e) psychology; (f) sociology; and (g) managerial functions (such as including human resources, organizational behavior, accounting, purchasing and logistics, marketing, technological change and innovation management, entrepreneurship and commercialization of innovations, and project management).
 |  |  |  |
| 1. Analyze systematically human behavior and/or organizational behavior and strategies using data collected via one or more social science research methodologies. The course content should include one or more of the following methods: (a) accounting and financial records; (b) case studies; (c) content analysis; (d) ethnography; (e) experiments; (f) focus groups; (g) grounded theory; (h) in-depth interviews; (i) network analysis; (j) surveys; (k) textual analysis; (l) thematic analysis; and (m) quantitative analysis.
 |  |  |  |
| 1. Apply understanding of dynamic social systems, including their formation and the circumstances by which they interact with natural environment and industrial organizations; and are upheld, maintained, and/or altered over time.
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**INSTRUCTIONS: A new course must satisfy completely at least two-thirds of the core learning outcomes for the literacy to be a GER course.**

\*Learning outcomes conform to Bloom’s *Taxonomy of Educational Objectives.*

**COMPUTING LITERACY LEARNING OUTCOMES ASSESSMENT**

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| **Learning Outcomes\*** | **Course Does Not Satisfy***(i.e., outcome is not at all covered or addressed in any meaningful way in the course)* | **Course Satisfies Somewhat***(i.e., outcome is addressed indirectly and is a non-primary area of course content/focus)* | **Course Satisfies Completely***(i.e., outcome is directly addressed throughout the course and is a primary focus of course content)* |
| 1. Formulate a problem in various domains in terms of quantified, specified inputs and desired outputs.
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| 1. Design a precise and complete step-by-step solution (algorithm) that produces a desired output from a specified input.
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| 1. Implement a solution to an algorithmic problem using the syntax and semantics of a high-level programming language.
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**INSTRUCTIONS: A new course must satisfy completely at least two-thirds of the core learning outcomes for the literacy to be a GER course.**

\*Learning outcomes conform to Bloom’s *Taxonomy of Educational Objectives.*