

GT Pathways & LAC Learning Outcomes: Natural & Physical Sciences

Note that competencies are general statements of knowledge, skills, and behaviors while outcomes are specific statements about skills students can demonstrate in a measurable way. The content criteria represent the makeup of the course itself (i.e., what the course must include in terms of content).

The left column summarizes information about the category and its requirements. This data is for reference purposes and is not included on the syllabus.

The right column contains the competencies, outcomes, and content criteria that are required on the syllabus.

Natural & Physical Sciences	
<p>o GT-SC1: Natural & Physical Sciences with Required Lab</p> <p>o GT-SC2: Natural & Physical Sciences without Required Lab</p> <p>Competencies: GT-SC1 and GT-SC2 require the following competencies and SLOs:</p> <ul style="list-style-type: none"> • Inquiry & Analysis: 4a, 5a-b, 6a • Quantitative Literacy: 1a, 2a <p>Content Criteria: Natural & Physical Sciences</p> <p>LAC attribute: Natural & Physical Sciences (LAS1) <i>courses w/lab also carry the attribute (LASL)</i></p>	<p>LAC Natural & Physical Sciences Learning Outcomes + GTP Competencies & SLOs</p> <p>Inquiry & Analysis: Inquiry is a systematic process of exploring issues/objects/works through the collection and analysis of evidence that results in informed conclusions/judgments. Analysis is the process of breaking complex topics or issues into parts to gain a better understanding of them.</p> <p>Student Learning Outcomes (SLOs) <i>Students should be able to:</i></p> <ol style="list-style-type: none"> 4. Select or Develop a Design Process <ol style="list-style-type: none"> a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline. 5. Analyze and Interpret Evidence <ol style="list-style-type: none"> a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus. b. Utilize multiple representations to interpret the data. 6. Draw Conclusions <ol style="list-style-type: none"> a. State a conclusion based on findings. <p>Quantitative Literacy: Competency in quantitative literacy represents a student’s ability to use quantifiable information and mathematical analysis to make connections and draw conclusions. Students with strong quantitative literacy skills understand and can create sophisticated arguments supported by quantitative evidence and can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc.).</p> <p>Student Learning Outcomes (SLOs) <i>Students should be able to:</i></p> <ol style="list-style-type: none"> 1. Interpret Information <ol style="list-style-type: none"> a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words). 2. Represent Information <ol style="list-style-type: none"> a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words). <p>Content Criteria for Natural & Physical Sciences (GT-SC1, GT-SC2):</p> <ol style="list-style-type: none"> 1. The lecture content of a GT Pathways science course (GT-SC1 or GT-SC2): Students should be able to: <ol style="list-style-type: none"> a. Develop foundational knowledge in specific field(s) of science.

- b. Develop an understanding of the nature and process of science.
- c. Demonstrate the ability to use scientific methodologies.
- d. Examine quantitative approaches to study natural phenomena.

2. The **laboratory content** of a GT Pathways science course (GT-SC1):

Students should be able to:

- a. Perform hands-on activities with demonstration and simulation components playing a secondary role.
- b. Engage in inquiry-based activities.
- c. Demonstrate the ability to use the scientific method.
- d. Obtain and interpret data, and communicate the results of inquiry.
- e. Demonstrate proper technique and safe practices.