**Natural & Physical Sciences**

**Overview:** KU Core 34 goals are aligned with the University’s [Institutional Learning Goals](https://assessment.ku.edu/institutional-learning-goals) (ILGs). The KU Core 34, KU’s general education curriculum, is assessed by the University Assessment Committee to measure student achievement of the ILGs. This is a separate process from degree-level assessment.

KU Core 34 goals are assessed in the aggregate using a sample of anonymous student assignments from each course meeting the KU Core 34 goal. KU Core 34 assessment is not designed to assess courses individually but rather to assess how the entire goal is meeting the learning outcomes and goal. Results of the assessment are provided to all instructors teaching courses within a particular KU Core 34 goal. Course instructors will be asked to reflect on the results during the University Core Curriculum Committee’s (UCCC) recertification process.

**Signature Assignments:** [Inclusion](https://kucore.ku.edu/criteria-inclusion) in the KU Core 34 curriculum requires courses to create one signature assignment across all sections. The signature assignment must meet the signature assignment parameters provided below. The University Assessment Committee will use the rubric below to assess student learning using a sample of signature assignments collected from each course. The UCCC expects courses to meet all learning outcomes and the milestones outlined in the rubric throughout their courses but acknowledges it may be challenging to do that within one assignment. Therefore, you are only required to meet the number of criteria outlined below.

The highlighted boxes on the rubric show the milestone students are expected to achieve in a foundational course. These milestones were selected by the UCCC with input from constituents teaching courses within each goal.

**Institutional Learning Goal:** Creative Inquiry – Apply cognitive skills and a broad array of knowledge to promote inquiry, discover solutions, and generate new ideas and creative works.

**KU Core 34 Learning Outcome:** Upon reaching this goal, students will be able to leverage sources, methods, and arguments in the natural and physical sciences to deepen their understanding of, critically question, and effectively apply knowledge within these disciplines’ foundational ideas. Examples of relevant skills and learning might include laboratory methods, interpreting observations, statistical analysis and data modeling, the scientific method, or quantitative reasoning.

**Signature Assignment Parameters:** The signature assignment should be a faculty-designed written, oral and/or visual assignment which presents students with the opportunity to fulfill at least **four** of the criteria outlined below:

* Clearly identify the problem or issue
* Retrieve and interpret the evidence, explaining how it supports or challenges various aspects of the issue
* Apply critical elements of a framework or theory
* Select an exemplar (e.g., case study, model, theoretical framework) that is relevant to the issue
* Organize the evidence to highlight patterns, differences, and similarities related to the issue
* Draw a conclusion that ties together the evidence and viewpoints discussed
* Discuss limitations and implications of the findings

**Natural & Physical Sciences Rubric**

The following rubric was adapted from existing validated and reliable AAC&U Value rubrics. The signature assignment submitted for your course will be evaluated using this rubric. The highlighted portions indicate the milestone that students in foundational KU Core 34 courses within this goal will be expected to achieve. These milestones were selected by the UCCC with input from constituents teaching courses within each goal.

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|  | **Capstone** | **Milestones** | | **Benchmark** |
|  | *Assignment Designed for students to demonstrate level of mastery of the outcome*  4 | *Assignment designed to reinforce previously practiced outcome*  3 | *Assignment designed to afford student practice with the outcome*  2 | *Assignment designed to introduce the outcome*  1 |
| **Explanation of Issues** | Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding. | Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions. | Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown. | Issue/problem to be considered critically is stated without clarification or description. |
| **Evidence**  *Selecting and using information to investigate a point of view or conclusion* | Information is taken from relevant source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. | Information is taken from relevant source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. | Information is taken from relevant source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. | Information is taken from relevant source(s) without any interpretation/evaluation. |
| **Design Process** | All elements of the methodology or theoretical framework are skillfully developed. Appropriate methodology or theoretical frameworks may be synthesized from across disciplines or from relevant subdisciplines. | Critical elements of the methodology or theoretical framework are appropriately applied; however, more subtle elements are ignored or unaccounted for. | Within application, critical elements of the methodology or theoretical framework are missing, incorrectly developed, or unfocused. | Identifies steps and/or key constructs in a given methodology or theoretical framework. |
| **Acquiring Competencies**  *This step refers to acquiring strategies and skills within a particular domain.* | Reflect: Evaluates creative process and product using domain-appropriate criteria. | Create: Creates an entirely new object, solution, or idea that is appropriate to the domain. | Adapt: Successfully adapts an appropriate exemplar to his/her own specifications. | Model: Successfully reproduces an appropriate exemplar. |
| **Analysis** | Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus. | Organizes evidence to reveal important patterns, differences, or similarities related to focus. | Organizes evidence, but the organization is not effective in revealing important patterns, differences, or similarities. | Lists evidence, but it is not organized and/or is unrelated to focus. |
| **Conclusions** | Conclusions are logical and reflect student’s informed evaluation and ability to place evidence and perspectives discussed in priority order. | Conclusion is logically tied to a range of information, including opposing viewpoints; | Conclusion is logically tied to information (because information is chosen to fit the desired conclusion) | Conclusion is inconsistently tied to some of the information discussed |
| **Limitations and Implications** | Insightfully discusses in detail relevant and supported limitations and implications. | Discusses relevant and supported limitations and implications. | Presents relevant and supported limitations and implications. | Presents limitations and implications, but they are possibly irrelevant and unsupported. |