

2020-2021 Rubrics for the Institute Student Learning Outcomes (ISLOs)

Click on a red icon below to direct to a particular outcome.

Rose-Hulman graduates will be technically competent in their domain and:

RH1

1. **Critical Thinkers** - develop evidence-based conclusions through a process of informed evaluation and judgment.

RH2

2. **Creative Problem Solvers** – develop and implement a strategy to answer an open-ended question or achieve a desired goal.

RH3

3. **Effective Communicators** - communicate effectively with a range of audiences through a variety of media.

RH4

4. **Ethical Professionals** - identify ethical and professional responsibilities, behave with integrity and responsibility, and make informed judgments.

RH5

5. **Leaders and Collaborators** - motivate and enable a team, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

RH6

6. **Informed Global Citizens** - engage with diverse beliefs, cultures, languages, or societies.

RH7

7. **Self-Directed Learners** - acquire, apply, and reflect upon new knowledge and skills for personal and professional growth using appropriate learning strategies.

RH8

8. **Civically-Engaged Citizens** – partner with a community to create positive change.

Revisions

RH1: Critical Thinkers and **RH2: Creative Problem Solvers** were updated on 2/2/2021 and approved by CASO.

Institute Student Learning Outcomes (RH1-8)

The Rose-Hulman Institute Student Learning Outcomes (ISLOs) articulate knowledge, skills, and behaviors that Rose-Hulman students are expected to demonstrate by the time of graduation. The outcomes are not dependent on a particular program of study, but rather they characterize generally what it means to be a graduate of Rose-Hulman.

Through an annual summer artifact collection and assessment process (RosEvaluation), the Commission on the Assessment of Student Outcomes (CASO)¹ determines student attainment of our outcomes, and the results help to support both institute and program continuous improvement efforts. Additionally, the ISLOs support critical institutional and programmatic accreditation practices for the Higher Learning Commission (HLC) and ABET.

Performance criteria (I, P, and E) and primary traits

For each learning outcome, Rose-Hulman has created introductory (I), proficient (P), and exemplary (E) criteria² and primary traits (i.e., rubrics) that describe specifically how the student work product should be evaluated. Criteria and rubrics were developed and are reviewed periodically by CASO.

The criteria levels are intended for (but not limited to) the following:

- **Introductory** = work from first year students or students intro courses
- **Proficient** = work from sophomore – senior students or first-year students taking advanced coursework
- **Exemplary** = examples of outstanding work produced by a student, likely a senior project or thesis

[Click here for info about Institutional Assessment](#)

¹ CASO is the campus-level assessment commission founded in 1996 that is made up of faculty from all programs, staff, and students.

² Formerly (in the [2007 Outcomes and Criteria](#)) we used A, B, and C to denote Introductory (I), Proficient (P), and Exemplary (E) levels, respectively. This notation was changed to reduce confusion relating to an A/B/C grading scale.

How did we revise the rubrics?

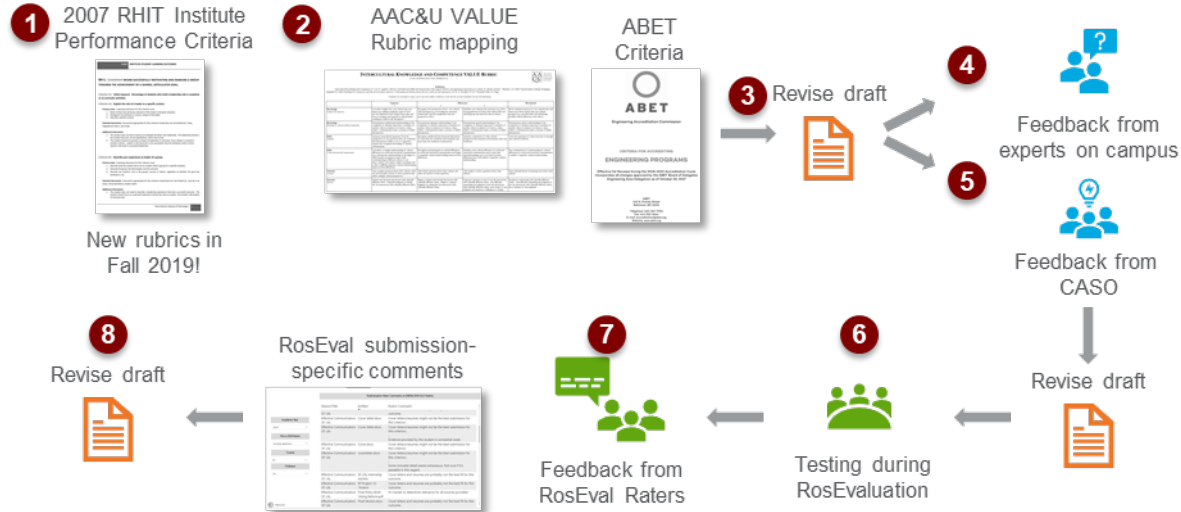


Figure 1: Flow chart illustrates revision process of rubrics for Institute Student Learning Outcomes, which are used for direct assessment of student learning during RosEvaluation.

Revision steps:

Spring 2019

1. Look at 2007 Institute Performance Criteria (rubrics)
2. Conduct VALUE rubric mapping with CASO members

Summer 2019

3. Interim Senior Director of IRPA and Director of Assessment develop drafts that integrate 2007 rubrics, VALUE rubric mapping, discipline-specific guidelines (ABET, ASEE, ASCE), peer-reviewed literature, and any recent revisions
4. IRPA gathers feedback from experts on campus
5. IRPA gathers feedback from CASO
6. IRPA tests rubrics during RosEvaluation. Director of Institutional Research identifies sample historical artifacts for testing
7. IRPA gathers feedback from RosEval raters on strengths and things to change. Use submission-specific comments to identify passing determination, potential comment tags, potential types of artifacts, and potential exemplary artifacts)

Fall 2019 and subsequent years

8. IRPA and CASO revise rubrics for next RosEvaluation period

Outcome RH1 – Critical Thinkers

Rose-Hulman graduates develop evidence-based conclusions through a process of informed evaluation and judgment.

Introductory Criterion 1.I1: Collects and evaluates relevant information to provide insight to well-formed questions and/or problems.

Primary Traits:

1. The artifact clearly identifies a specific question, problem, or issue.
2. The artifact identifies evidence related to the question, problem, or issue.
3. The artifact cites sources created by others both in the text and in a reference list using any style of documentation.

Proficient Criterion 1.P1: Formulates high-quality, evidence-based conclusions to questions, problems, or issues.

Primary Traits:

1. The artifact clearly identifies a complex question, problem, or issue.
2. The artifact documents an accurate and thorough conclusion that addresses the question/problem.
3. The artifact explains how the evidence justifies the conclusion.

Proficient Criterion 1.P2: Critically examines the claims of others and articulates opinions in support or opposition.

Primary Traits:

1. The artifact accurately summarizes and documents a third-party's claim.
2. The artifact provides commentary on the strengths, limitations, and/or merit of the claim it responds to.
3. The artifact adapts, strengthens, or defends a position as a result of compelling evidence.

Exemplary Criterion 1.E1: Provides substantive critique that includes recommendations for improvements.¹

Primary Traits

1. The artifact provides insightful commentary on strengths of the work.
2. The artifact provides specific, helpful, and constructive recommendations for improvement.
3. The artifact provides justification for that criticism or evaluation as it relates to curricular or professional standards or expectations.

Example artifacts:

Review of a piece of written literature, a critique of an oral presentation, an evaluation of a team performance, a review of a set of PowerPoint slides, a review of a piece of art, a review of a music, dance, or theatrical performance.

Metacognition criteria are currently under construction.

Outcome RH2 – Creative Problem Solvers^{1–6}

Rose-Hulman graduates develop and implement a strategy to answer an open-ended question or achieve a desired goal.

Introductory Criterion 2.I1: Develop a solution to a multi-step problem.^{3,7,8}

Primary traits:

1. The artifact must include a clearly defined problem statement* including appropriate problem constraints or contextual factors (ethical, cultural, and/or social).
2. The artifact should identify assumptions.
3. The artifact should use multiple steps to solve the problem.

*Provided by either the instructor or student

Proficient Criterion 2.P1: Given an open-ended question or problem, discusses the problem constraints or contextual factors (ethical, cultural, and/or social) of the problem using appropriate evidence.^{3,7,8}

Primary traits:

1. The artifact clearly defines an open-ended problem statement.
2. The artifact clarifies what information is needed to understand the constraints and/or contextual factors and/or describes how these factors are used to limit the scope of the problem.
3. The artifact acknowledges alternate, divergent, or contradictory perspectives or ideas.

Proficient Criterion 2.P2: Develops a solution to an open-ended problem.³

Primary traits:

1. The artifact evaluates the merits of multiple approaches and justifies at least one reasonable approach to solving the problem.
2. The artifact supports claims about the problem-solving approach using appropriate evidence and/or professional standards.
3. The artifact synthesizes ideas or solutions into a coherent whole.

Proficient Criterion 2.P3: Develops a plan, model, or experiment to test an approach or hypothesis.

Primary traits:

1. The artifact defines a model, hypothesis, or expected outcome.
2. *If theoretical*, provides a series of logical, sequential steps with justification of how student arrived at the next step.
3. *If experimental*, the artifact provides and justifies a procedure that tests the approach or hypothesis.

Example artifacts:

Research/lab projects, research/lab presentations, proposals, final reports

Proficient Criterion 2.P4: Evaluates results by interpreting data and/or information ⁴.³

Primary traits:

1. The artifact evaluates results by doing one or more of the following:
 - a. Analyzing information
 - b. Processing information
 - c. Synthesizing information
2. The artifact identifies any assumptions, limitations or sources of error.
3. The artifact draws conclusions and justifies those conclusions.

Example artifacts:

Research report, theses, lab reports

³ To evaluate data visualizations, refer to [RH3 - Effective Communicators \(Proficient Criterion 3.P2\)](#) – Use appropriate, relevant, truthful, and compelling visual content to illustrate proficiency of a subject.

Proficient Criterion 2.P5: Extends new questions for future work that demonstrate understanding of implications.

Primary traits:

1. The artifact describes implications of a proposed solution and/or results given the problem constraints and/or contextual factors (ethical, cultural, and/or social factors).
2. The artifact provides thorough, specific considerations of need and/or questions to explore in future work.

Example artifacts:

Senior theses

Exemplary Criterion 2.E1: Determines how to modify a problem-solving process or create a new approach.

Primary traits:

1. The artifact provides a clear explanation of previous work and results.
2. The artifact has a clear connection to previous work.
3. The artifact demonstrates a deep understanding of problem constraints and/or contextual factors (ethical, cultural, and/or social) by explaining why the audience should care.
4. The artifact fully discusses ways to change or improve initial assumptions, hypotheses, and/or the complexity of the approach.
5. The artifact contributes a new approach and/or information to solve the problem.

Example artifacts:

Senior theses, junior-level research proposals

Outcome RH3 – Effective Communicators

Rose-Hulman Graduates communicate effectively with a range of audiences through a variety of media.

Introductory Criterion 3.I1: Presents a coherent argument supported by evidence. ⁹

Primary Traits:

1. The writer or presenter clearly states support of a single position or proposal.
2. The position is supported by relevant evidence appropriate to the argument and audience in terms of reliability, currency, accuracy, and/or perspective.
3. The argument has a clear and consistent organization that includes items such as headings, transitions, and topic sentences.

Example artifacts:

Proposals, position papers, policy briefs, or presentations. Target courses for this criterion may include RH 131 or RH 330 (Technical Communication).

Proficient Criterion 3.P1: Demonstrates an understanding of the needs of a non-specialized audience and the ability to adapt information to that audience. ^{1,9-11}

Primary Traits

1. The artifact includes background information and establishes the purpose of the document appropriate for the audience.
2. Although an audience may not be explicitly stated, the artifact is tailored to the educational level and/or field of the intended audience by using appropriate vocabulary and images, eliminating or defining jargon, and explaining acronyms.
3. The artifact has a clear organizational structure that is appropriate for the topic and made clear to the audience through headings, transitions, and topic sentences as appropriate.
4. The artifact discusses the value, merit, or broader implications of the topic to make the case relevant to the audience.

Example artifacts:

Policy briefs, presentations

Proficient Criterion 3.P2: Uses appropriate, relevant, truthful, and compelling visual content to illustrate proficiency of a subject. ^{1,9,12,13}

Primary Traits

1. Visuals provided are analytical or technical in some way, and are not merely decorative.
2. Visuals provided are contextually appropriate and clearly support the argument made by the author.
3. Visuals are referenced and discussed within the text or presentation where appropriate.
4. Visuals provided contain appropriate scales, captions, labels, and/or sources allowing them to be understood by the reader.
5. The artifact uses common design strategies like contrast in size or color, repetition, and alignment to make the document easy to read and interpret.

Example artifacts:

Posters, PowerPoint slides, written assignments or technical reports from laboratory, design, or technical communication courses

Proficient criterion 3.P3: Engages in closed-loop communication in a professional manner. ^{14,15}

Primary traits:

1. Communication with team and appropriate stakeholders is clear, complete, concise, and timely.
2. Uses professional writing conventions and terminology appropriate to the audience.
3. *In an electronic or phone exchange*, ensures that the receiver received and appropriately interpreted the communication.
4. *In an in-person or video communication*, team members demonstrate active listening by
 - a. Concentrating on what is being said rather than “passive” hearing
 - b. Remaining neutral and non-judgmental
 - c. Not jumping in with questions or comments
 - d. Maintaining eye contact

Example artifacts:

Email or memo to client, project debrief meeting, reflection, communication checklist

Outcome RH4 – Ethical Professionals

Rose-Hulman Graduates identify ethical and professional responsibilities, behave with integrity and responsibility, and make informed judgments.

Introductory Criterion 4.I1: Identifies and describes ethical or professional responsibilities related to a professional context. ^{1,8,16}

Primary Traits

1. The artifact describes a professional context.
2. The artifact cites relevant code(s) of ethics or a professional standard of practice.
3. The artifact articulates how the code(s) of ethics or professional standard of practice apply to the professional context.

Introductory Criterion 4.I2: Explains behavior that is consistent with expectations for a specific professional situation. ¹⁷

Primary Traits

1. The artifact provides an overview and context for the specific professional situation.
2. The artifact describes specific examples of behaviors or actions taken during this situation.
3. The artifact explains how these behaviors or actions meet or exceed expectations for professionalism within the situation.

Example artifacts:

Reference/recommendation letters, ethics position papers/policy briefs

Proficient Criterion 4.P1: Applies an ethical decision-making framework to develop an informed judgment related to an ethical or professional dilemma. ¹⁶

Primary Traits

1. The artifact describes an ethical or professional dilemma.
2. The artifact identifies and describes one or more methodologies or frameworks to guide ethical decision making.
3. The artifact applies a methodology or framework to reach an informed decision.

Exemplary Criterion 4.E1: Makes an informed ethical judgment with consideration of the global, economic, environmental, and/or societal impacts. ^{8,16}

Primary Traits

1. The artifact describes an ethical or professional dilemma.
2. The artifact critically examines at least two competing decisions by addressing the ethical dilemma and citing reputable evidence when necessary.
3. The artifact explicitly discusses the appropriate global, economical, environmental, and/or social implications associated with the final decision or judgment.
4. In the final decision or judgment, the artifact endorses an appropriate ethical decision.

Exemplary Criterion 4.E2: Demonstrates integrity and ethical behavior that is recognized by a superior (e.g., instructor, supervisor, mentor, etc.). ^{8,18,19}

These primary traits are currently under construction.

Outcome RH5 – Leaders and Collaborators

Rose-Hulman Graduates motivate and enable a team, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Introductory Criterion 5.I1: Demonstrates awareness of one’s personality type(s) and leadership style(s).

Primary traits:

1. The artifact identifies the individual’s personality type(s) and describes its traits.
2. The artifact demonstrates awareness of their leadership style(s).
3. The artifact defines the strengths and weaknesses of being a leader with these personality type(s).

Example artifacts:

True Colors, Colorful Portrait, Myers Brigg, StrengthsFinder, CATME, LEAD workshops, and reflection

Introductory Criterion 5.I2: A team or collaboration appropriately divides tasks among its members.^{1,20–22}

Primary traits:

1. The artifact describes an awareness of each member’s abilities and responsibilities.
2. The artifact describes how tasks were divided appropriately among its members.
3. The artifact provides a description of how each member’s abilities contribute to task completion.

Example artifacts:

Report of team responsibilities, memo, team meeting, reflection

Proficient criterion 5.P1: Demonstrates that the team or collaborative environment is supportive and inclusive.²³

Primary traits:^{24,25}

1. The artifact describes how the team or collaborative member frames mistakes or setbacks as learning opportunities.
2. The artifact illustrates how the team or collaborative member solicits perspectives from all members.

3. The artifact shows how a team or collaborative member supports others' contributions even in cases of dissent.

Example artifacts:

Team memo, document of team meeting, reflection, CATME evaluation, psychological safety checklist

Proficient criterion 5.P2: Demonstrates how the diversity among the team or collaboration supports their efforts to achieve a common or shared goal.^{1,20-22}

Primary traits:

1. The artifact identifies the diversity of background and/or skills of each member and how they relate to achieving the goal.
2. The artifact shows how different perspectives from multiple members were discussed for the solution of the problem.

Example artifacts:

Client emails, self-reflections, group evaluations, design reports, memos, lab reports, teamwork reflection, shared mental model checklist

Proficient criterion 5.P3: Collaboratively develops goals and evaluates their feasibility.²⁶⁻²⁸

Primary traits:

1. The artifact defines realistic and attainable goals that are agreed upon by all collaborators and/or team members.
2. The artifact shows how communication amongst participants results in goal development.
3. The artifact identifies potential challenges and/or resources for achieving the goals.
4. If appropriate, the artifact describes metrics for determining success of the team goals.

Proficient criterion 5.P4: Collaboratively works towards achievement of goals and evaluates the progress.

Primary Traits:

1. The artifact indicates integration of subgroups in achieving a common goal.
2. The artifact evaluates progress towards the completion of the common goals.

3. The artifact shows adjustment of any goals as necessary.

Proficient Criterion 5.P5: An individual, acting as a leader, motivates and enables a group to progress towards completion of goals towards an articulated vision.^{29–31}

Primary traits:

1. The artifact shows how the individual communicates the merits of the shared vision.
2. The artifact demonstrates how the individual leverages the strengths and manages around the weaknesses of the group to move toward achievement of their goals.
3. The artifact shows how the individual identifies resources and opportunities for team success.
4. The artifact demonstrates how the individual supports the members in their pursuit of these resources and opportunities.

Example artifacts:

Award nominations, videos of meetings, meeting minutes,

Exemplary-level criteria are currently under construction.

Outcome RH6 – Informed Global Citizens

Rose-Hulman Graduates engage with diverse beliefs, cultures, languages, or societies.

Introductory Criterion 6.I1: Describes and analyzes a society, group, or culture.^{1,32,33}

Primary Traits:

1. The artifact clearly identifies the society, group, or culture being analyzed.
2. The artifact describes relevant characteristics of that group, including political or economic conditions, historical influences, or cultural values or practices.

Example artifacts:

Written assignments from HSSA courses (human or social interaction)

Proficient Criterion 6.P1: Interprets an intercultural experience, taking into account the values, assumptions, and/or practices relevant to the culture(s) involved.^{1,32,33}

Primary Traits:

1. The artifact describes an intercultural or international experience.
2. The artifact interprets a specific event or interaction from that experience, including details about cultural values, assumptions, and practices.

Example artifacts:

Written assignments from HSSA courses (social interaction or global studies)

Proficient Criterion 6.P2: Interprets cultural artifacts and/or ideas in philosophy, the arts, or the sciences.^{1,32,33}

Primary Traits:

1. The artifact analyzes, interprets, or evaluates artistic or intellectual artifacts, which may include film, literature, philosophy, music, or other forms.
2. The artifact discusses the relevance of the artifact to concepts like historical changes, political and economic conditions, or how cultural values, assumptions, or practices shape or are shaped by the artifact(s).

Proficient Criterion 6.P3: Identifies and reflects on strategies for effective intercultural communication. ³⁴

Primary Traits:

1. The artifact describes strategies for successful intercultural communication, including adapting examples, language, or other elements to be culturally relevant and inclusive.
2. The artifact reflects on factors that contribute to effective intercultural communication, such as empathy, awareness of differences in communication preferences, and self-awareness.

Exemplary Criterion 6.E1: Discusses complex global problems, their causes, and/or their effects in the context of the societies of cultures involved. ^{1,32,33}

Primary Traits:

1. The artifact identifies a problem, event, or process involving other societies, cultures, or parts of the world.
2. The artifact discusses challenges imposed by cross-cultural interaction: technology, time, distance, language, cultural differences, etc.
3. The artifact analyzes how different perspectives could be used to address the identified problem.

Example artifacts:

Reflections on cross-cultural interactions (academic or co-curricular), recorded student-led discussions, project reports

Outcome RH7 – Self-Directed Learners

Rose-Hulman Graduates acquire, apply, and reflect upon new knowledge and skills for personal and professional growth using appropriate learning strategies.

Introductory Criterion 7.I1: Develops a plan to acquire new knowledge or skills to achieve a clear personal and/or professional goal ¹⁹.

Primary Traits:

1. The artifact provides a list of reasonable goals.
2. The artifact identifies the new knowledge or skill that the student hopes to achieve.
3. The artifact describes how the new knowledge or skill will help the student achieve their goal.
4. The artifact provides evidence of an organized plan for achieving those goals.

Example Artifacts:

Reflection on a study abroad experience; budget for a BIC/KIC team proposal; time management plan; individual development plan

Introductory Criterion 7.I2: Self-regulation and control - Demonstrates an understanding of the requirements of a task and completes the task appropriately ³⁵.

Primary traits:

1. The artifact defines a task or goal based on a prescribed assignment or prompt
2. The artifact sets goals and a plan for moving forward.
3. The artifact identifies if goals align with the task.
4. The artifact identifies study or learning strategies to complete the task.
5. The artifact provides a reflection on how the strategies helped them achieve the task or if new strategies are needed.

Proficient Criterion 7.P1: Locates, evaluates and applies required information to the problem at hand. ^{8,16,36}

Primary Traits:

1. The artifact describes at least one deficiency / limitation in one's own knowledge set and/or skills as it pertains to a particular problem or question.

2. The artifact documents the strategy used to collect relevant information or resources.
3. The artifact identifies relevant and reliable information to address the problem or question.
4. The artifact demonstrates how the information was used to address the problem at hand.

Example artifacts:

Annotated bibliographies, research papers

Proficient Criterion 7.P2: Undertakes and manages a self-directed, complex, and sustained project ³⁷.

Primary traits:

1. Balancing competing demands on attention, time and effort was required.
2. The artifact describes the student's emotional management to persevere in the face of roadblocks and challenge.
3. The artifact describes organization/project management by autonomously managing a long-term project. Student selects what to read, when to read, and what to write about the reading.
4. The artifact provides a reflection on adaptability, or the student's ability to change focus based on the unfolding situation within the project.

Example artifacts:

Time management plan (schedule, calendar); oral interview, completed senior project

Exemplary Criterion 7.E1: Demonstrates exceptional curiosity in the pursuit of a new educational or professional endeavor ³⁸.

Primary traits:

1. The artifact includes a clear description of the educational or professional endeavor.
2. The artifact provides a reflection on what the student learned.
3. The reflection includes evidence of an in-depth exploration of a topic that produces a rich awareness or intense interest in the subject.

Exemplary Criterion 7.E2: Analyses information/data and synthesizes to fully integrate components and fill knowledge gaps that are stated by others³⁹.

Primary traits:

1. The artifact represents a research, independent study, or other professional training experience.
2. The artifact creates something beyond expectation by providing new insight, contributing generalizable knowledge or expanding our current knowledge of a problem.
3. The artifact is published in a professional journal, conference proceeding, or other public-facing form.

Example artifacts:

Independent study reflection; research paper; senior thesis presentation, poster, or paper; reflection on LinkedIn learning experience from RosePod

Exemplary Criterion 7.E3: Self-regulation and control/metacognitive judgment and monitoring - Evaluates the influence of their own thinking process when making a decision^{35,40}.

Primary Traits:

1. The artifact identifies and refines a learning goal.
2. The artifact evaluates and applies appropriate learning strategies for that goal.
3. The artifact reflects on why they chose a particular learning strategy to approach the goal, including how the strategy helped them achieve the task.
4. The artifact reflects on different approaches needed in the future based on how the current plan worked.
5. The artifact adapts the approach based on what is appropriate within the current process.

Indirect Assessment:

- Motivated Strategies for Learning Questionnaire (MSLQ)⁴¹
- Observation³⁵

Example artifacts:

Reflection after a tutoring session/office hour appointment; methods/discussion sections of a research paper

Outcome RH8 – Civically-Engaged Citizens

Rose-Hulman Graduates partner with a community to create positive change.

Introductory Criterion 8.I1 (assessed through Student Affairs): At an Institutional level, Rose-Hulman service-related organizations engage in local, national, and/or international service to communities.

Performance indicators:

1. 80% of students involved in service-related organizations
2. Number of service events per year
3. Number of service hours per year
4. Number of dollars raised per year

Example artifacts:

Tracking from Banner Co-Curricular Report

Proficient Criterion 8.P1: Acknowledges their ability and responsibility to address social problems as members of a larger social group.

Primary traits:

1. The artifact identifies a meaningful social problem to address.
2. The artifact provides meaningful self-examination and reflection about how the student is impacted by the problem as a member of the social group.
3. The artifact demonstrates empathy or concern for others.
4. The artifact describes the student's capacity to address the problem and suggests a plan of action.

How can it be evaluated ⁴²?

1. "Reflection on a service activity that a student participated in.
2. Assignments that require students to work in groups to study a public policy or community issue within their discipline and to propose solutions to community problems.

Indirect assessment:

1. [Civic-Minded Graduate assessment](#) ⁴³
2. [Civic Engagement assessments](#) ^{44,45}
3. [Empathic concern](#) ⁴⁶

4. [Interpersonal Reactivity Index](#) ⁴⁷

Example artifacts:

Electronic personal development plan (<https://pdp.iupui.edu/>) developed with Student Academic Success, Interviews with Project SELECT or Catapult counselors, [journal or notebook](#) about personal experiences at a service-related event

Proficient Criterion 8.P2: Demonstrates a personal contribution to a community challenge that reflects on skills used, relationships made, and actions taken to solve that community challenge.

Primary traits: ⁸

1. The artifact describes a community challenge.
2. The artifact demonstrates an understanding of and empathy for the community being served.
3. The artifact describes the personal contribution.
4. The artifact describes that the student has reflected about whether their actions were appropriate and sufficient for the community challenge (culturally, economically, socially, and/or environmentally appropriate).
5. If applicable, the artifact identifies alternative actions that may better serve the community in the future.

Indirect assessment:

1. Emotional Intelligence (EQ) assessment (self-awareness/mindfulness, self-regulation/accountability/stress and anger management, motivation/goal-setting/self-discipline, empathy/active listening, social skills/trust-building/dealing with conflict)
2. [Civic-Minded Graduate assessment](#) ⁴³
3. [Civic Engagement assessments](#) ^{44,45}
4. [Empathic concern](#) ⁴⁶
5. [Interpersonal Reactivity Index](#) ⁴⁷

Example artifacts:

[Reflection](#) on the service activity and how that impacted their civic engagement at Rose-Hulman, journal or notebook about personal experiences before/during/after leading a service-related organization, interview

Proficient Criterion 8.P3: Proposes or implements a project to benefit a community outside of Rose-Hulman

Primary traits:

1. The artifact meets a need for a community or organization outside of Rose-Hulman.
2. The artifact demonstrates knowledge of that community's or organization's needs, values, challenges, or resources.
3. The artifact is of professional quality and could be used by a community or organization without major changes.

Exemplary Criterion 8.E1: Leads a project or effort that directly results in positive change at a policy, organizational, community, national, or global level.

Primary traits:

1. The artifact articulates why change is appropriate due to cultural, economic, social, and/or environmental reasons.
2. The artifact describes the student's role in leading the change.
3. The artifact describes any outcomes as a result of the student's leadership.
4. The artifact demonstrates how the student has reflected upon and analyzed how their actions appropriately addressed the community challenge (culturally, economically, socially, and/or environmentally appropriate).
5. The artifact identifies if there were any unintended consequences of their actions and identifies alternative actions that may better serve the community in the future.
6. The artifact describes steps taken or a mechanism to ensure that the project is maintained after the student discontinues their participation.

Glossary

Based on feedback from internal and external experts, CASO developed a glossary to clarify the following terms:

Term	Definition	References
Civic identity	“Those fully engaged, fully human citizens of their communities. They see their role in life as contributing to the long-term greater good. And perhaps most importantly, they have the courage to act.”	48
Civic knowledge/ literacy	“Any learning that contributes to student preparation for public involvement in a diverse democratic society. The knowledge, skills, and values that make an explicitly direct and purposeful contribution to the preparation of students for active participation.”	48
Communication in teams	<ul style="list-style-type: none"> • clear (message does not cause confusion), • complete (all relevant details), • concise (remove unnecessary details) and • timely (dependable, avoid delays) 	20,21
Empathy	"Empathy is the imaginary participation in another person's experience, including emotional and intellectual dimensions, by imagining his or her perspective (not by assuming the person's position)".	49
Evidence-based claim	“Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.”	32
Global Self-Awareness	In the context of global learning, the continuum through which students develop a mature, integrated identity with a systemic understanding of the interrelationships among the self, local and global communities, and the natural and physical world.	32,33
Goal	What you are trying to accomplish, the objective or aim of an action	20,21
Goal setting	A process where an individual or team want to change the present condition – the desire to attain an objective or outcome	20,21
Inclusive environment	Groups or organizations possess an awareness of how “implicit bias, including microaggressions, contributes to lack of diversity and inequitable treatment,” are motivated to “reduce the influence of implicit bias,” and employ “evidence-based strategies for increasing diversity.”	50
Intercultural experience	“The experience of an interaction with an individual or groups of people whose culture is different from your own.”	32,33

Term	Definition	References
Intercultural/cultural differences	“The differences in rules, behaviors, communication and biases, based on cultural values that are different from one’s own culture. Suspends judgment in valuing their interactions with culturally different others: Postpones assessment or evaluation (positive or negative) of interactions with people culturally different from one self. Disconnecting from the process of automatic judgment and taking time to reflect on possibly multiple meanings.”	32,33
Leadership	A leader “motivat[es] and enable[es] a group toward a shared, articulated goal.” Models of leadership include trait-based, behavioral ideals, situational/contingency, functional, and integrated psychological models.	51,52
Management	“The process of dealing with or controlling things or people.” A manager “is responsible for making sure something gets done...Management requires being given authority, but leadership can be learned and used by ANYONE.”	51
Model set-up	In mathematics, this may include setting up an expected solution or numerical approximation, boundary conditions, and/or assumptions.	53
Non-specialized audience	If an audience is not explicitly stated, assume an intelligent, interested reader or user who is not trained within the student’s discipline.	9
Open-ended question	A complex problem that has undefined boundaries and includes at least one of the following: diverse groups of stakeholders, many component parts or sub-problems, multiple disciplines, or significant consequences in a range of contexts.	7,54
Personal and Social Responsibility	The ability to recognize one’s responsibilities to society--locally, nationally, and globally--and to develop a perspective on ethical and power relations both across the globe and within individual societies. This requires developing competence in ethical and moral reasoning and action.	32,33
Teamwork	“a team consists of more than one person working toward a common goal and should include individuals of diverse backgrounds, skills, or perspectives” and a team member is “able to work effectively with others”	7,55

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Rubric revisions

Revisions to RH1: Critical Thinkers

Rose-Hulman graduates develop evidence-based conclusions through a process of informed evaluation and judgment.

Approved by CASO on 2/2/21

Previous Text

Introductory Criterion 1.I1: Collects and evaluates relevant information to provide insight to well-formed questions and/or problems.

Primary Traits:

1. The artifact clearly identifies a specific question, problem, or issue.
2. The artifact identifies evidence related to the question, problem, or issue.
3. The artifact appropriately cites sources created by others.
4. The artifact evaluates the sources in terms of relevance, reliability, currency, accuracy, and/or bias.

Proficient Criterion 1.P1: Formulates high-quality, evidence-based conclusions to questions, problems, or issues.

Primary Traits:

1. The artifact clearly identifies a complex question, problem, or issue.
2. The artifact documents an accurate and thorough conclusion that addresses the question/problem.
3. The artifact provides evidence to justify the conclusion.
4. The artifact provides accurate and complete reasoning that links evidence to the conclusion.

Proficient Criterion 1.P2: Critically examines the claims of others and articulates opinions in support or opposition.

Primary Traits:

1. The artifact accurately summarizes and documents a third-party's claim.
2. The artifact synthesizes others' points of view and connects ideas from different sources.
3. The artifact provides commentary on the strengths, limitations, and/or merit of the claim it responds to.
4. The artifact adapts, strengthens, or defends a position as a result of compelling evidence.

New Text

Introductory Criterion 1.I1: Collects and evaluates relevant information to provide insight to well-formed questions and/or problems.

Primary Traits:

1. The artifact clearly identifies a specific question, problem, or issue.
2. The artifact identifies evidence related to the question, problem, or issue.
3. The artifact cites sources created by others both in the text and in a reference list using any style of documentation.

Proficient Criterion 1.P1: Formulates high-quality, evidence-based conclusions to questions, problems, or issues.

Primary Traits:

1. The artifact clearly identifies a complex question, problem, or issue.
2. The artifact documents an accurate and thorough conclusion that addresses the question/problem.
3. The artifact explains how the evidence justifies the conclusion.

Proficient Criterion 1.P2: Critically examines the claims of others and articulates opinions in support or opposition.

Primary Traits:

1. The artifact accurately summarizes and documents a third-party's claim.
2. The artifact provides commentary on the strengths, limitations, and/or merit of the claim it responds to.
3. The artifact adapts, strengthens, or defends a position as a result of compelling evidence.

Previous Text

Exemplary Criterion 1.E1: Provides substantive critique that includes recommendations for improvements ¹.

Primary Traits

1. The artifact provides insightful commentary on strengths of the work.
2. The artifact provides substantive, helpful, and constructive recommendations for improvement.
3. The artifact provides justification for that criticism or evaluation as it relates to curricular or professional standards or expectations.

New Text

Exemplary Criterion 1.E1: Provides substantive critique that includes recommendations for improvements.¹

Primary Traits

1. The artifact provides insightful commentary on strengths of the work.
2. The artifact provides specific, helpful, and constructive recommendations for improvement.
3. The artifact provides justification for that criticism or evaluation as it relates to curricular or professional standards or expectations.

Revisions to RH2: Creative Problem Solvers

Rose-Hulman graduates develop and implement a strategy to answer an open-ended question or achieve a desired goal.

Approved by CASO on 2/2/21

Previous Text

Introductory Criterion 2.I1: Develop a solution to a multi-step problem.^{3,7,8}

Primary traits:

1. The artifact clearly defines a problem statement including appropriate problem constraints or contextual factors (ethical, cultural, and/or social).
2. The artifact should identify assumptions and the problem-solving approach.
3. The artifact recognizes existing connections among ideas or solutions.

Proficient Criterion 2.P3: Develops a plan, model, or experiment to test an approach or hypothesis.

Primary traits:

1. The artifact defines a model, hypothesis, or expected outcome.
2. *If theoretical or model-based*, provides a series of logical, sequential steps with justification of how student arrived at the next step.
3. *If experimental*, the artifact provides an appropriate procedure for testing the approach or hypothesis.
4. The methods described in the artifact are based on or appropriately adapted from credible sources and/or professional standards.

Proficient Criterion 2.P4: Evaluates results by interpreting data and/or information.

Primary traits:

1. The artifact evaluates results of the plan or experiment, comparing actual to expected results if appropriate.
2. The artifact identifies any limitations or sources of error.
3. When the actual results do not reasonably match expected results, the artifact identifies at least one strategy to revise the question, hypothesis, approach, or experiment.
4. If appropriate, the artifact provides a recommendation on which solution to implement.

New Text

Introductory Criterion 2.I1: Develop a solution to a multi-step problem.^{3,7,8}

Primary traits:

1. The artifact must include a clearly defined problem statement* including appropriate problem constraints or contextual factors (ethical, cultural, and/or social).
2. The artifact should identify assumptions.
3. The artifact should use multiple steps to solve the problem.

*Provided by either the instructor or student

Proficient Criterion 2.P3: Develops a plan, model, or experiment to test an approach or hypothesis.

Primary traits:

1. The artifact defines a model, hypothesis, or expected outcome.
2. *If theoretical*, provides a series of logical, sequential steps with justification of how student arrived at the next step.
3. *If experimental*, the artifact provides and justifies a procedure that tests the approach or hypothesis.

Proficient Criterion 2.P4: Evaluates results by interpreting data and/or information.

Primary traits:

1. The artifact evaluates results by doing one or more of the following:
 - a. Analyzing information
 - b. Processing information
 - c. Synthesizing information
2. The artifact identifies any assumptions, limitations or sources of error.
3. The artifact draws conclusions and justifies those conclusions.