

## From Artificial Intelligence to Human Intelligence in Program Assessment

Robyn Hall, MBA  
Director, Professional Programs  
rhall@abet.org

Gloria Rogers, PhD, FASEE  
Senior Adjunct Director, ABET  
Senior Scholar Emerita, Higher Learning  
Commission  
grogers@abet.org



2024 Assessment Institute

## Overview



**Setting the  
context**

**Advantages &  
Limitations**

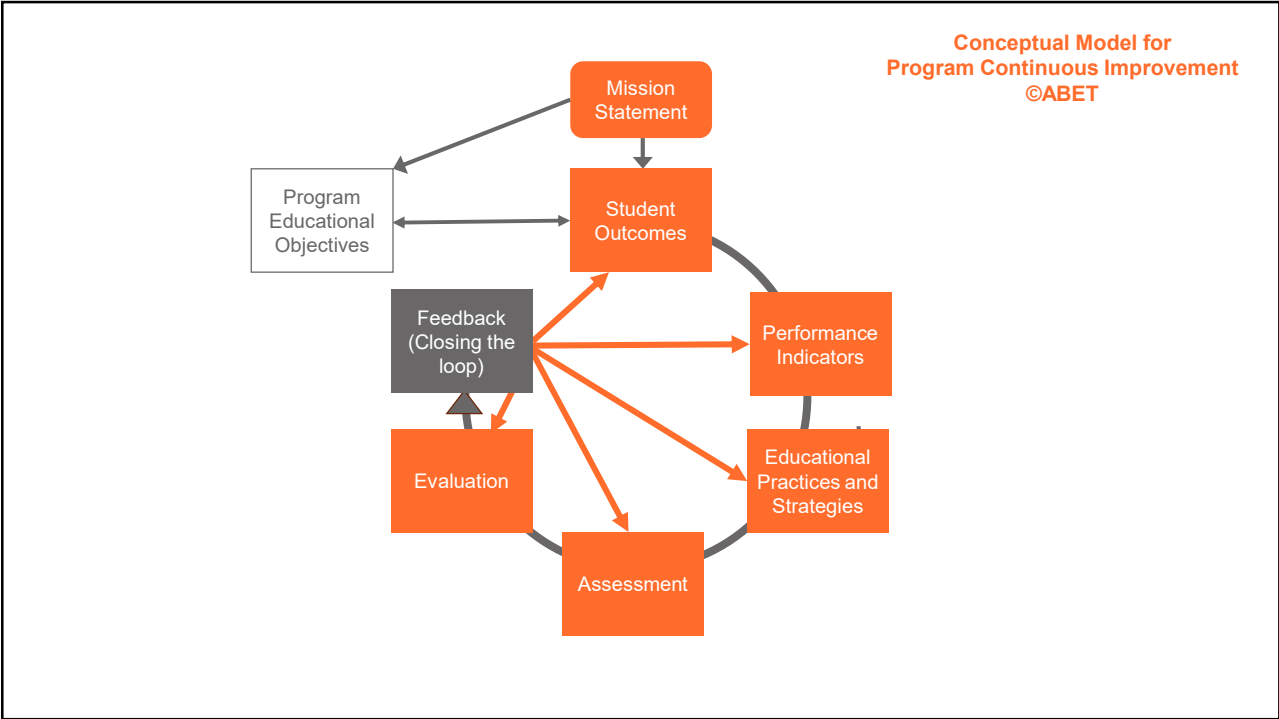
**Examples in  
Program  
Assessment**

Student outcomes and  
Performance Indicators  
Rubrics  
Formative and  
Summative assessments

**Use of Prompts  
Lessons  
Learned**

**Attendee  
Experiences**





## Course assessment

CN111L	ENG101	FS FPA	MATH136	FSGPCD	ELECG	CET411	ELECCG
FS Hlth	COM101	FS LS	MATH222	FSCOMP	FS SBS	ENV454	FS ESR
FSComm	ECT160	CNST201	PHYS101	CET401	MET405	CET420	FSUDIE
MET103	PS105L	MA131	EN170L	CNT420	CET410	ELECCG	ECET479
MATH123	ENG105	ECET223	MET302	MET406	FS UDIE	MET409	ECET424

Faculty as content expert and facilitator of learning

## Program assessment

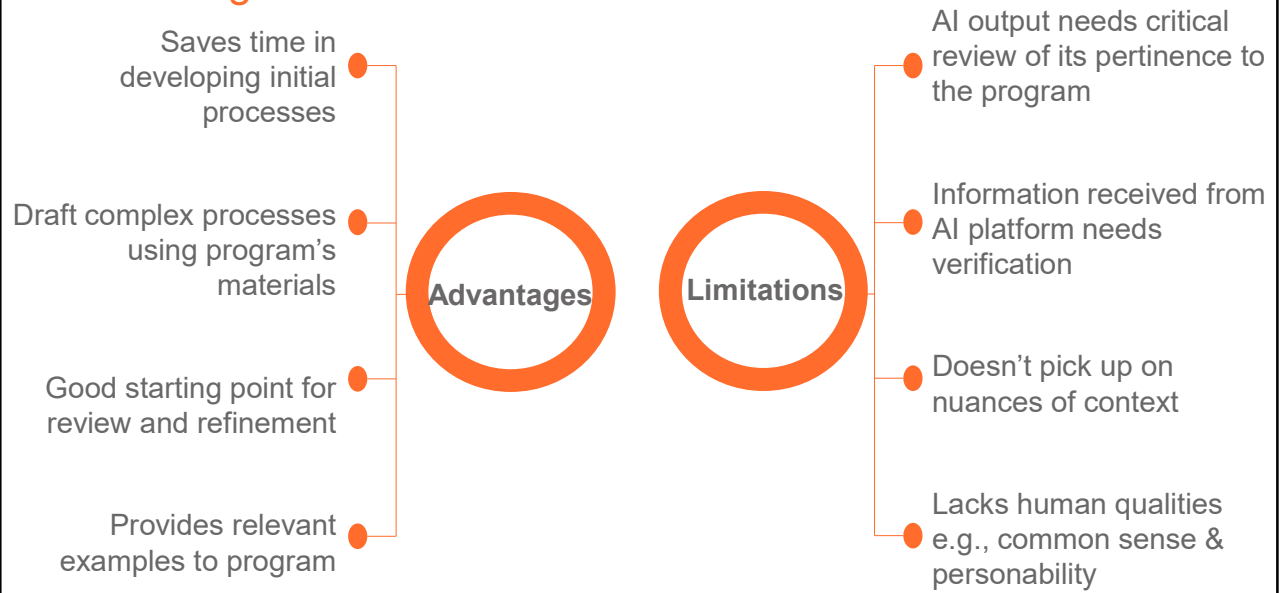
CN111L	COM101	FS FPA	ECET223	FSGPCD	MET406	CET411	ELECCG				
MATH123	MATH136	ELECG	MET409	FS Hlth	ECT160	FS LS	MATH222	FSCOMP	FS SBS	ENV454	FS ESR
FSComm	PS105L	CNST201	PHYS101	CET401	MET405	CET420	FSUDIE	ENG101	EN170L	CET410	ECET479
MET103	ENG105	MATH131	MET302	CNT420	FS UDIE	ELECCG	ECET424				

Faculty as a member of a learning community

## Focus is on the Program

- ✓ Program assessment focuses on the program, not individual courses.
- ✓ Program assessment focuses on program, not individual faculty members.
- ✓ Program assessment focuses on cohort of students, not individual students.

## Advantages and limitations



03

### Examples in Program Assessment

1

Student outcomes and performance indicators

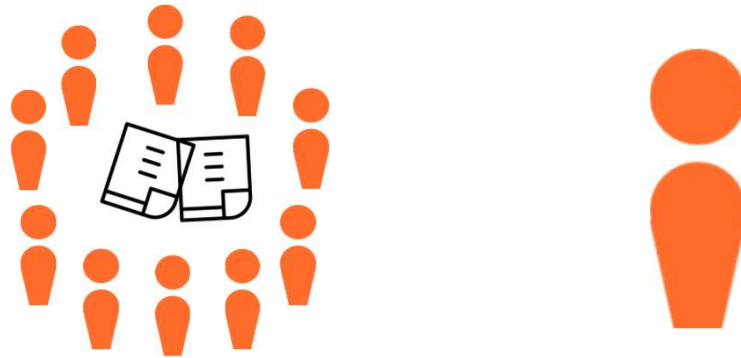
2

Rubrics

3

Formative and summative assessment tasks and exemplars

## Creating program assessments



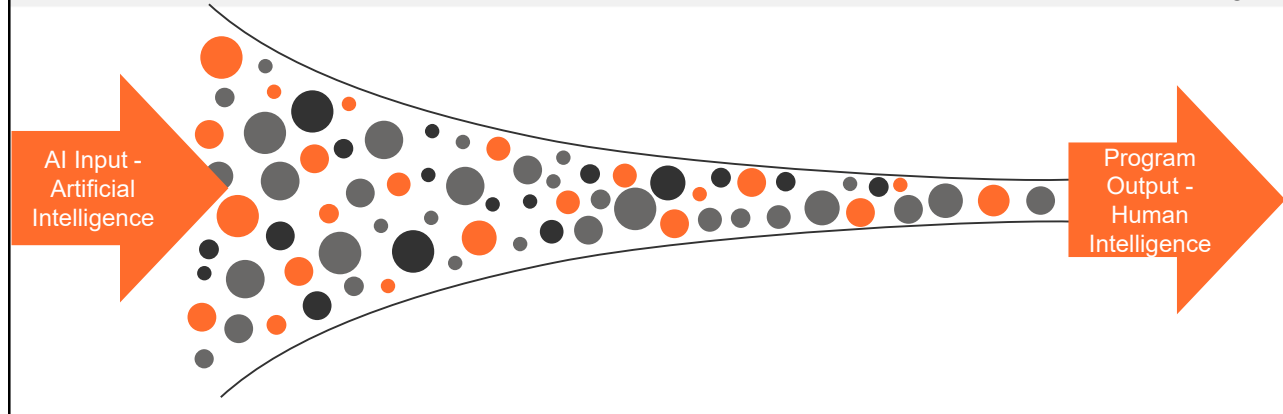
### AI-generated performance indicators – written communication skills

1. Constructs coherent and well-organized written arguments appropriate to the audience.
2. Develops concise and persuasive written communication tailored to the target stakeholders.
3. Formulates precise and accurate scientific explanations for various audiences.
4. Crafts engaging narratives and descriptive passages suitable for the intended readers.
5. Produces clear and concise technical documents catered to the specific user or reader.
6. Synthesizes and presents scholarly information effectively to scholarly audiences in the form of research papers.

## AI Filter - Performance Indicators

### What questions to ask?

Are these PIs appropriate for our program?    Is there only one performance in each indicator?    Are they at the right domain level?    What is missing that is important to our program?    Are these PIs discipline specific? (Should they be?)    How many do we need to have confidence of attainment of SOs



## Program revisions to AI-generated PIs

1. Constructs ~~coherent and~~ well-organized written arguments appropriate to the audience.
2. Develops concise written communication ~~tailored to the target stakeholders.~~
3. Formulates ~~precise and~~ accurate ~~scientific~~ technical explanations ~~for various audiences.~~
4. ~~Crafts engaging narratives and descriptive passages suitable for the intended readers.~~
5. ~~Produces clear and concise technical documents catered to the specific user or reader.~~
6. ~~Synthesizes and presents scholarly information effectively to scholarly audiences in the form of research papers.~~
7. Uses graphical communication ~~which uses~~ with clear labeling and overall visual organization.

## Program performance indicators

1. Constructs well-organized written arguments appropriate to the audience.
2. Develops persuasive written communication.
3. Formulates accurate technical explanations.
4. Uses graphical communication with clear labeling and overall visual organization.



AI used multiple performances in one indicator



Not all indicators were relevant to the program



Performance indicators that were important to the program were omitted

What was  
Learned



## Can I use AI to generate program rubrics?

Performance indicators:

1. Constructs well-organized written arguments appropriate to the audience.
2. Develops persuasive written communication.
3. Formulates accurate technical explanations.
4. Uses graphical communication with clear labeling and overall visual organization.

Demonstrate effective writing skills appropriate to the audience.				
	Exemplary (4)	Proficient (3)	Basic (2)	Unsatisfactory (1)
Constructs well-organized written arguments appropriate to the audience	Consistently constructs well-organized arguments precisely tailored to the audience's needs and expectations, effectively engaging the audience throughout.	Constructs mostly well-organized arguments appropriate to the audience, with occasional lapses in organization or alignment with audience needs.	Constructs arguments that lack clear organization or relevance to the audience, resulting in occasional confusion or disengagement.	Fails to construct well-organized arguments suitable for the audience, leading to significant confusion or misunderstanding.
Develops persuasive written communication	Demonstrates exceptional persuasive communication, effectively engaging the audience with compelling arguments supported by strong evidence and persuasive techniques.	Develops written communication with persuasive elements, including clear arguments and some evidence, though with occasional weaknesses in engagement or conviction.	Presents written communication with limited persuasive elements, such as weak arguments or insufficient evidence, resulting in limited engagement or persuasion..	Fails to develop persuasive written communication, lacking clear arguments or compelling evidence, resulting in minimal engagement or persuasion.
Formulates accurate technical explanations	Provides highly accurate technical explanations that demonstrate deep understanding of the subject matter, effectively conveying complex concepts with precision and clarity.	Formulates accurate technical explanations with minor inaccuracies or occasional lapses in clarity, but overall effectively communicates complex concepts to the audience.	Provides technical explanations with significant inaccuracies or lacks clarity, resulting in confusion or misunderstanding of complex concepts.	Formulates technical explanations that are consistently inaccurate or unclear, hindering understanding of complex concepts.
Uses graphical communication with clear labeling and overall visual organization	Utilizes graphical communication with exceptional clarity, employing clear labeling, appropriate visual aids, and overall outstanding visual organization that significantly enhances understanding and engagement.	Uses graphical communication with clear labeling and effective visual organization, enhancing understanding and engagement with the content, though with occasional minor lapses.	Employs graphical communication with labeling and visual organization that may be unclear or inconsistent, occasionally hindering understanding or engagement with the content.	Uses graphical communication with unclear labeling and poor visual organization, significantly impeding understanding and engagement with the content.

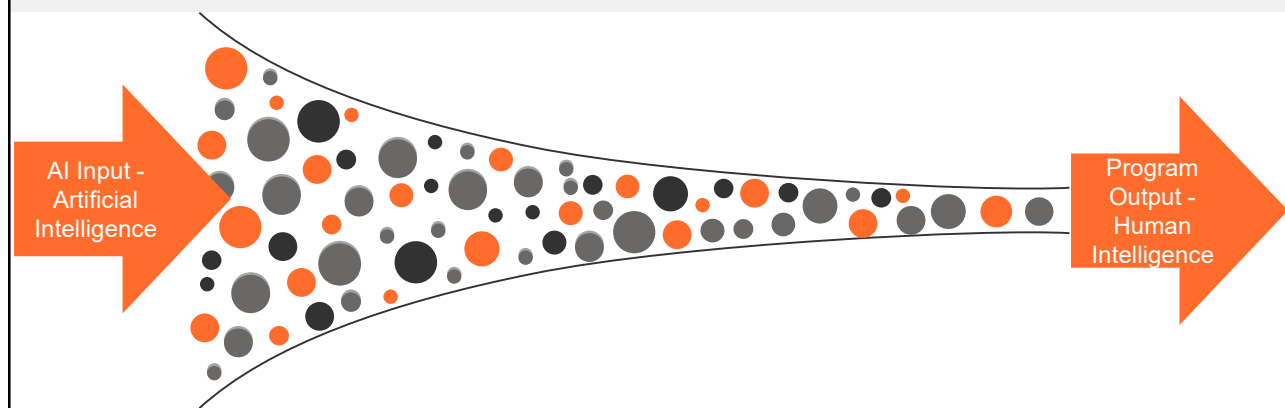
## Program revisions

Demonstrate effective writing skills appropriate to the audience.				
	Needs Improvement	Developing	Proficient	Excellent
Constructs well-organized written arguments appropriate to the audience	Struggles to construct well-organized written arguments appropriate to the audience.	Attempts to construct well-organized written arguments but lacks consistency and clarity.	Constructs well-organized written arguments appropriate to the audience.	Constructs well-organized and compelling arguments that are highly appropriate for the intended audience.
Develops persuasive written communication	Fails to develop persuasive written communication, leading to difficulties in understanding the message.	Struggles to develop persuasive written communication, resulting in some confusion for the audience.	Develops persuasive written communication that generally conveys the intended message.	Demonstrates exceptional writing skills, conveying ideas persuasively.
Formulates accurate technical explanations	Provides inaccurate technical explanations that hinder comprehension.	Attempts to provide accurate technical explanations, but errors and inaccuracies are noticeable.	Formulates accurate technical explanations, though with some occasional lapses.	Consistently formulates accurate technical explanations, displaying a deep understanding of the subject matter.
Uses graphical communication with clear labeling and overall visual organization	Uses graphical communication inadequately, lacking clear labeling and overall visual organization.	Incorporates graphical communication but labeling and overall visual organization need significant improvement.	Uses graphical communication with clear labeling and overall visual organization, though some improvements could be made.	Effectively uses graphical communication to enhance understanding, with clear labeling and exceptional overall visual organization.

## AI Filter - Rubrics

### What questions to ask?

Is content area consistent with descriptors?



## Is content area consistent with descriptors?

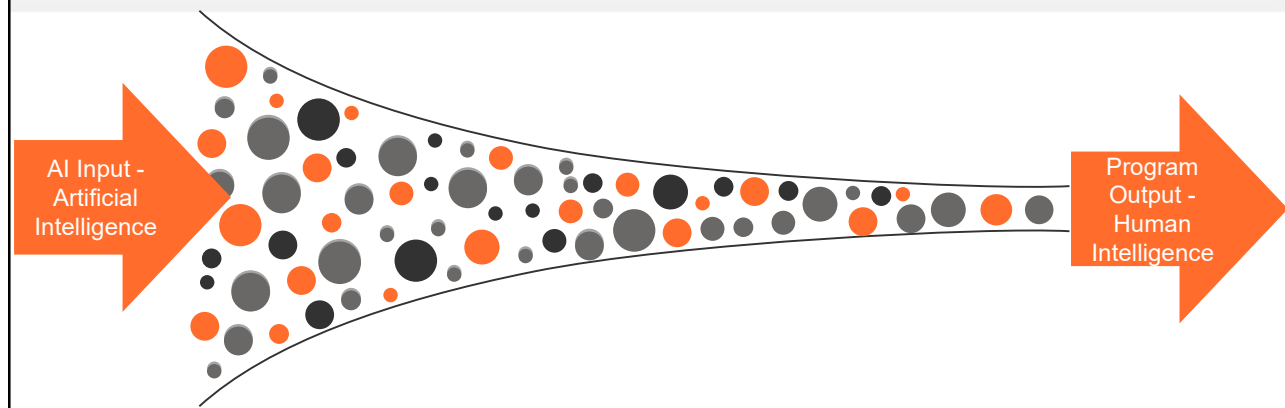
Content ↓	Demonstrate effective writing skills appropriate to the audience.			
	Needs Improvement	Developing	Proficient	Excellent
Constructs well-organized written arguments appropriate to the audience	Struggles to construct well-organized written arguments appropriate to the audience.	Attempts to construct well-organized written arguments but lacks consistency and clarity.	Constructs well-organized written arguments appropriate to the audience.	Constructs well-organized and compelling arguments that are highly appropriate for the intended audience.
Develops persuasive written communication	Fails to develop persuasive written communication, leading to difficulties in understanding the message.	Struggles to develop persuasive written communication, resulting in some confusion for the audience.	Develops persuasive written communication that generally conveys the intended message.	Demonstrates exceptional writing skills, conveying ideas persuasively.
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## AI Filter - Rubrics

### What questions to ask?

Is content area consistent with descriptors?

Are there multiple performances in a single descriptor?



## Are there multiple performances in a single descriptor?

Demonstrate effective writing skills appropriate to the audience.				
Content	Needs Improvement	Developing	Proficient	Excellent
Constructs well-organized written arguments appropriate to the audience	Struggles to construct well-organized written arguments appropriate to the audience.	Attempts to construct well-organized written arguments but lacks consistency and clarity.	Constructs well-organized written arguments appropriate to the audience.	Constructs well-organized and compelling arguments that are highly appropriate for the intended audience.
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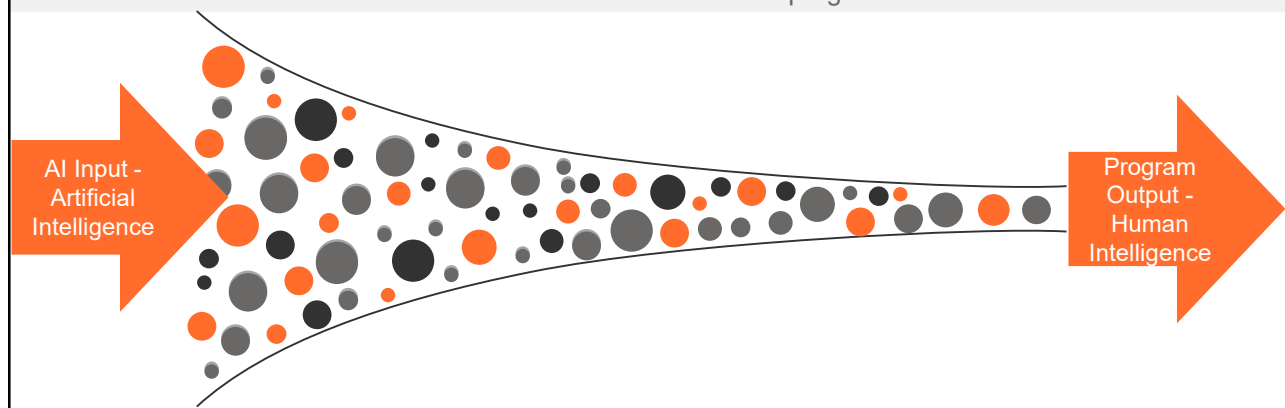
## AI Filter - Rubrics

### What questions to ask?

Is content area consistent with descriptors?

Are there multiple performances in a single descriptor?

Do descriptors represent what is important to the program?

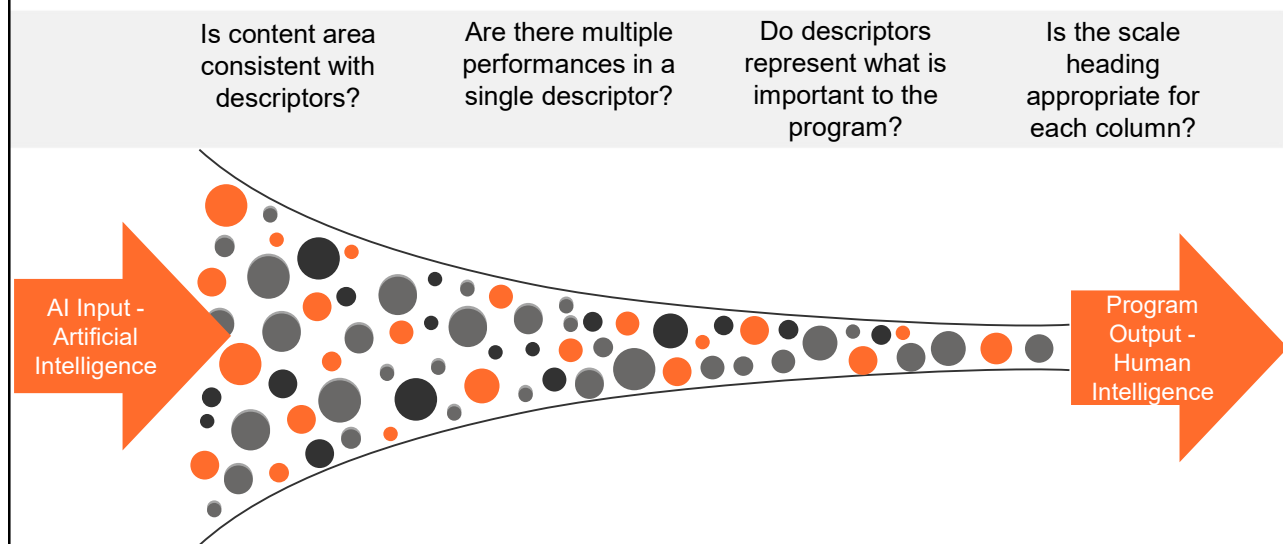


## Do descriptors represent what is important to the program?

Demonstrate effective writing skills appropriate to the audience.				
	Needs Improvement	Developing	Proficient	Excellent
Constructs well-organized written arguments appropriate to the audience	Struggles to construct well-organized written arguments appropriate to the audience.	Attempts to construct well-organized written arguments but lacks consistency and clarity.	Constructs well-organized written arguments appropriate to the audience.	Constructs well-organized and compelling arguments that are highly appropriate for the intended audience.
Develops persuasive written communication	Fails to develop persuasive written communication, leading to difficulties in understanding the message.	Struggles to develop persuasive written communication, resulting in some confusion for the audience.	Develops persuasive written communication that generally conveys the intended message.	Demonstrates exceptional writing skills, conveying ideas persuasively.
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## AI Filter - Rubrics

### What questions to ask?

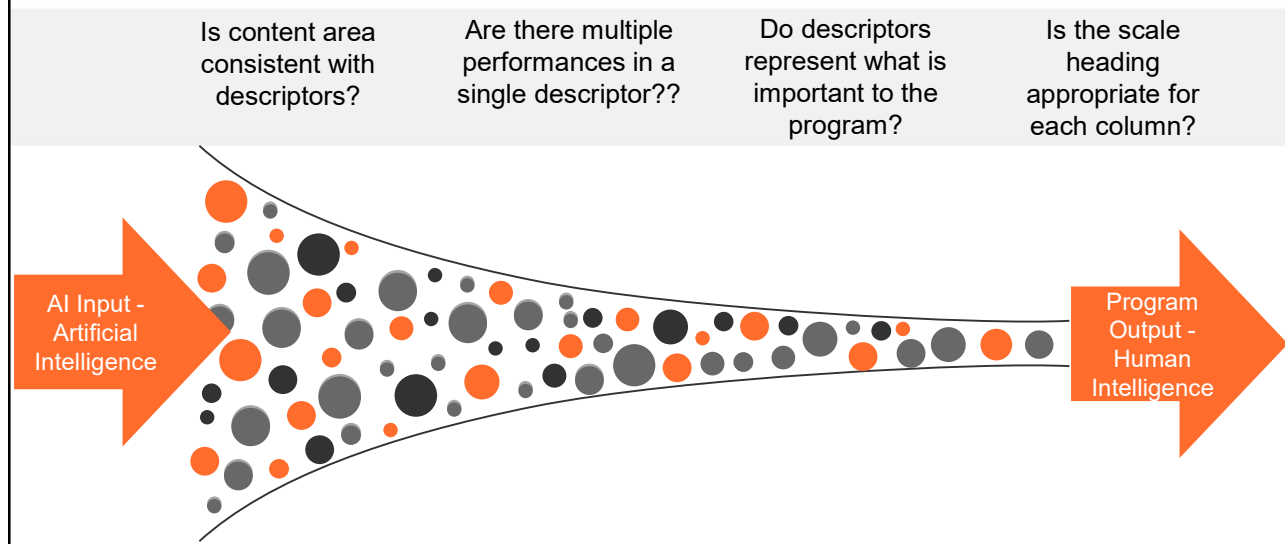


## Is the scale heading appropriate for each column?

Demonstrate effective writing skills appropriate to the audience.				
	Needs Improvement	Developing	Proficient	Excellent
Constructs well-organized written arguments appropriate to the audience	Struggles to construct well-organized written arguments appropriate to the audience.	Attempts to construct well-organized written arguments but lacks consistency and clarity.	Constructs well-organized written arguments appropriate to the audience.	Constructs well-organized and compelling arguments that are highly appropriate for the intended audience.
Develops persuasive written communication	<b>AI generated note:</b> The rubric provides a general guideline for scoring performance based on the given indicators. The <u>specific point values</u> and descriptions can be adjusted based on the specific context and weighting of each indicator, as well as the desired level of performance.			
Formulates accurate technical explanations				
Uses graphical communication with clear labeling and overall visual organization	Uses graphical communication inadequately, lacking clear labeling and overall visual organization.	Incorporates graphical communication but labeling and overall visual organization need significant improvement.	Uses graphical communication with clear labeling and overall visual organization, though some improvements could be made.	Effectively uses graphical communication to enhance understanding, with clear labeling and exceptional overall visual organization.

## AI Filter - Rubrics

### What questions to ask?





Same prompt, same performance indicators, different results



Scale directions were not consistent when asked to regenerate for a different scale

## What was Learned

### Developing program formative and summative assignments

Formative assignments use course specific prompt

Summative assignments focus on program outcomes

Scoring methods can be the same (rubric)

Example:

Importance of prompt



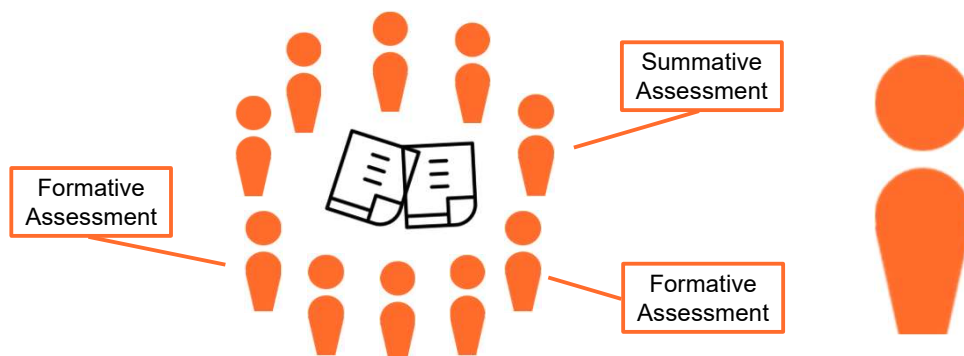
	First Year					Sophomore				Junior			Senior			
	CSCI 1301	CSCI 2200	CSCI 1302	CSCI 2611	CSCI 2210	CSCI 1730	CSCI 2300	CSCI 2720	CSCI 2920	CSCI 3270	CSCI 4270	CSCI 4210	CSCI 4230	CSCI 4235	CSCI 4910	CSCI 4911
<b>COMMUNICATE EFFECTIVELY IN WRITING</b>																
1. Constructs well-organized written arguments appropriate to the audience.	x			x	x			x			x	x		x	x	x
1. Develops persuasive written communication.	x			x	x			x			x	x		x	x	x
1. Formulates accurate technical explanations.	x		x	x	x									x		x
1. Uses graphical communication with clear labeling and overall visual organization.	x		x		x			x			x			x	x	x

	First Year					Sophomore				Junior			Senior			
	CSCI 1301	CSCI 2200	CSCI 1302	CSCI 2611	CSCI 2210	CSCI 1730	CSCI 2300	CSCI 2720	CSCI 2920	CSCI 3270	CSCI 4270	CSCI 4210	CSCI 4230	CSCI 4235	CSCI 4910	CSCI 4911
<b>COMMUNICATE EFFECTIVELY IN WRITING</b>																
1. Constructs well-organized written arguments appropriate to the audience.	x			x	x			x			x	x		x	x	x
1. Develops persuasive written communication.	x			x	x			x			x	x		x	x	x
1. Formulates accurate technical explanations.	x		x	x	x									x		x
1. Uses graphical communication with clear labeling and overall visual organization.	x		x		x			x			x			x	x	x



## Creating a program summative assessment task - Example

## Creating program assessments



## Creating a program summative assessment task - Examples

Examples provided:

Summative assessment tasks

Formative assessment tasks

Exemplars

Rubric for both

## Critical review of AI output



Accurate



Appropriate



Useful

## Report card for program applications

- ★★★★☆ Aligning student outcomes with mission statement
- ★★★★☆ Aligning student outcomes with educational objectives
- ★★★☆☆ Developing performance indicators
- ★★★★☆ Developing scoring rubrics
- ★☆☆☆☆ Developing qualitative data (thematic)
- ★★★★☆ Developing summative and formative assessment tasks
- Others?

## Descriptive prompts can improve the quality of the output provided

Importance  
of the  
prompt

- Be specific
- Interact with AI as if it were a person
- Indicate the target audience's knowledge
- Indicate the format that you desire
- Build on previous prompts with follow-up prompts
- Correct mistakes and give feedback if AI goes off track
- Ask for citations or why AI answered the way it did

## Lessons Learned to Date

01

The right prompt is important

02

Recognize that it is probably not going to be exactly what you need

03

AI might miss the subtle contextual nuances, impacting the accuracy of the output

04

Not a substitute for faculty insights

05

AI can provide valuable insights when used appropriately, and in conjunction with faculty judgment and expertise

## GenAI Chatbot Prompt Library for Educators

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Lesson Planning

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**In-Person**

**Institute for the Development of Excellence in Assessment Leadership (IDEAL)**  
January 8 – 11, 2025 | New Orleans, LA USA  
March 17 – 20, 2025 | Bogotá, Colombia

**Fundamentals of Program Assessment**  
November 2 | Cairo, Egypt  
November 7 | Baltimore, MD USA\*  
March 18, 2025 | Bogotá, Colombia

**Assessment of Student Learning**  
November 4 – 5 | Cairo, Egypt  
March 19 – 20, 2025 | Bogotá, Colombia

**Continuous Improvement Assessment Forum (team-based)**  
November 8 - 9 | Baltimore, MD USA\*  
\*held at ABET headquarters



**Virtual**

**Advanced Program Assessment**  
December 2 – 4 | 9:00 AM – 12:00 PM ET

Powered by **ABET**

# ABET is excited to announce the launch of four new program assessment credentialing courses!



**Credentialing Certificate**  
Program Assessment  
Design and Develop



**Course One**

Performance Indicators and Curriculum Mapping



**Course Two**

Programs Assessment Methods and Measures



**Course Three**

Effective Rubrics for Program Assessment



**Course Four**

Survey and Questionnaire Design

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Example of AI-generated Summative and Formative assessment tasks with Exemplars and Rubric

**G Rogers and R Hall, Assessment Institute, 2024**

**Summative Assessment:**

**Prompt:** You are the program assessment leader, skilled in crafting unique educational assessments that accurately and effectively evaluate the skills and learning of students who are finishing the Computer Science program. Your task is to generate 2 creative summative performance tasks, that are an alternative to a standard test appropriate for a computer science senior about to graduate from the university program. Tasks should be engaging, applicable, appropriate, and enable faculty to assess student attainment of the following student performance indicators. The tasks should ensure our students are exhibiting and applying their understanding and skills that will enable them to successfully complete a computer science project. The performance indicators to be assessed are:

1. Constructs well-organized written arguments appropriate to the audience.
2. Develops persuasive written communication.
3. Formulates accurate technical explanations.
4. Uses graphical communication with clear labeling and overall visual organization.

Provide exemplars for each of the assessments.

**AI RESPONSE:**

Here are two creative summative performance tasks that align with the performance indicators you want to assess for senior computer science students:

Task 1: **\*\*Capstone Technical Proposal and Pitch\*\***

In this task, students will write a detailed technical proposal for a software project or computer system they have worked on during their senior year. The task will assess their ability to communicate technical concepts effectively while also persuading a target audience (technical and non-technical stakeholders) to approve the project for further development. After submitting the written proposal, students will present a brief pitch of their project using visual aids (such as slides) to emphasize key points.

Task Instructions:

1. **\*\*Technical Proposal (Written)\*\*:** Students will write a 5-10 page proposal for their final project.

The proposal should include:

- An overview of the problem the project is solving.
- A summary of the project's objectives and outcomes.
- A detailed explanation of the technologies, algorithms, or systems involved, with technical depth.
- Arguments persuading stakeholders of the project's feasibility, benefits, and cost-effectiveness.
- Properly labeled diagrams, flowcharts, or system architectures to visually represent technical aspects.

2. **Project Pitch (Presentation)**: Students will deliver a 5-7 minute presentation to "investors" or a mock committee. They must use graphical representations (diagrams, infographics, slides) to communicate the project's essence, emphasizing the clarity and organization of visual aids.

**Exemplar (Summary):**

**Written Proposal Exemplar**: A student proposes a mobile app to improve access to mental health resources. The proposal uses clear, logical structure, technical depth in explaining how the app interfaces with an external database using API calls, and includes well-labeled diagrams for the data architecture and user flow. The writing persuades the audience by highlighting user accessibility and potential societal benefits.

**Pitch Exemplar**: In a 5-minute presentation, the student uses a slide deck with a concise system architecture diagram, visually appealing graphs to illustrate market demand, and well-labeled UI mockups to clearly communicate the solution.

**Task 2: Software Documentation with User Guide and Tutorial Video**

For this task, students will create comprehensive user documentation and a video tutorial for a software system they developed. The task will assess their ability to formulate accurate technical explanations and persuasive written and graphical communication, assuming the role of a technical writer who needs to ensure the software is usable by both technical and non-technical users.

**Task Instructions:**

1. **Written Documentation**: Students will write user documentation that includes:

- A step-by-step guide to installing, configuring, and running the software.
- Detailed explanations of key features, functionalities, and underlying technical architecture.
- FAQs and troubleshooting tips.
- Well-labeled diagrams or screenshots to explain complex processes.

2. **Video Tutorial**: Students will create a 5-8 minute tutorial video that walks users through a specific use case of the software, explaining both basic and advanced features. The video should demonstrate technical accuracy while also being clear and accessible to users of varying skill levels.

**Exemplar (Summary):**

**Written Documentation Exemplar**: A student provides clear, step-by-step instructions for installing and using their image processing tool. The guide includes screenshots with labels, a block diagram of the internal workings of the image filter algorithms, and troubleshooting tips that highlight potential user issues. The documentation effectively combines technical detail with clarity for the end user.

**Video Tutorial Exemplar**: The student presents a clear, structured tutorial demonstrating how to use the image filtering tool. The video includes voiceover explanations, on-screen instructions, and



annotations, helping users understand both how to use the interface and what is happening behind the scenes.

Both tasks assess students' ability to construct arguments, communicate persuasively, and clearly explain technical details using both written and graphical forms.

### **Formative Assessment:**

**Prompt:** Using the same request, develop two assessments with the same performance indicators but this time develop them with exemplars as formative assessments to be used in a first year introduction to computer science class at the University level.

### **AI Response:**

Here are two formative assessments designed for first-year students in an introduction to computer science course. These tasks will help instructors gauge students' ability to construct well-organized written arguments, develop persuasive written communication, formulate technical explanations, and use graphical communication.

#### **Task 1: \*\*Explaining a Simple Algorithm in Plain Language\*\***

In this formative task, students will be required to select a basic algorithm (such as bubble sort, linear search, or binary search) and explain how it works in plain language suitable for a non-technical audience. This task will help assess their ability to construct clear written arguments and explain technical concepts at an introductory level. They will also include a simple diagram to visually represent the algorithm's process.

#### **Task Instructions:**

1. **\*\*Written Explanation\*\*:** Students will write a 2-3 paragraph explanation of a chosen algorithm in language that a person with no computer science background can understand. The explanation should:

- Introduce the problem the algorithm solves.
- Walk through the steps of the algorithm in simple, accessible terms.
- Highlight why the algorithm is useful in solving the problem.

2. **\*\*Graphical Representation\*\*:** Students will create a simple, hand-drawn or digitally created diagram (flowchart or step-by-step visual) to visually illustrate how the algorithm works. The diagram should be clear and properly labeled.

#### **Exemplar (Summary):**

- **\*\*Written Explanation Exemplar\*\*:** A student explains how bubble sort works by describing it as “a method of sorting a list by comparing each pair of adjacent items and swapping them if they are in the wrong order. The process repeats until the list is fully sorted.” The explanation avoids jargon and emphasizes the simplicity of the process.

- **Diagram Exemplar**: The student includes a flowchart that shows how pairs of elements are compared and swapped, with labels such as “compare,” “swap,” and “next pair” to clarify the process.

#### Task 2: **Writing a Persuasive Email to Request Funding for a Student Project**

In this task, students will write a mock email to their university’s student funding committee requesting a small budget (e.g., \$200) to develop a simple app or software solution they are proposing to build as part of a class project. This task will help assess their ability to develop persuasive communication, organize a written argument, and integrate technical explanations for a non-technical audience.

#### **Task Instructions:**

1. **Email Composition**: Students will write a 300-500 word persuasive email that includes:

- A clear, concise introduction to the project.
- A brief explanation of how the app or software works, written for non-technical readers.
- A justification for the funding, including how it will be used and why it is essential to the success of the project.
- A respectful and professional tone, suitable for formal communication.

2. **Graphical Representation (Optional)**: Students may include a simple mock-up of the app’s interface or a basic diagram showing how the app works to help communicate the project more clearly.

#### **Exemplar (Summary):**

- **Email Exemplar**: A student writes a persuasive email requesting \$200 to build an app that helps students track their study hours and manage study breaks. The email explains the purpose of the app, the basic functionality (logging hours and sending reminders), and why the funding is needed (to purchase a hosting service and a development environment). The tone is polite and professional, and a simple diagram of the app’s interface is attached.

These formative assessments provide first-year students with opportunities to practice key communication skills in writing and graphics while applying their emerging knowledge of computer science concepts. They are designed to be low-stakes but instructive, giving students room to grow and improve their abilities early in the program.

Prompt: Develop one scoring rubric that can be used for both the formative and summative assessment tasks for the written communication skills using the same performance indicators. 1. Constructs well-organized written arguments appropriate to the audience. 2. Develops persuasive written communication. 3. Formulates accurate technical explanations. 4. Uses graphical communication with clear labeling and overall visual organization.

## **AI Response: Scoring Rubric for Written Communication Assessments**

This rubric can be applied to both the formative and summative assessment tasks, providing clear criteria for evaluating student performance on the four performance indicators.

### **Notes for Using the Rubric:**

- **Scoring Range:** Each criterion is scored out of 4. Total points can be converted to a percentage by summing the scores (maximum of 16 points) and dividing by the total (e.g.,  $(\text{Score}/16) * 100$ ).
- **Consistency:** Apply the rubric consistently across both formative and summative tasks to track student growth from early attempts (formative) to final demonstrations of mastery (summative).
- **Feedback:** In formative assessments, use this rubric to provide constructive feedback, highlighting areas for improvement, while offering specific examples of how to elevate their work.

This rubric supports a detailed evaluation of each performance indicator, while offering flexibility for both beginning learners and more advanced students nearing graduation.

Performance Indicator	4 – Exemplary (90-100%)	3 – Proficient (80-89%)	2 – Developing (70-79%)	1 – Needs Improvement (Below 70%)
<b>1. Constructs well-organized written arguments appropriate to the audience</b>	<b>Argument is exceptionally clear, logical, and tailored to the audience.</b> Writing flows smoothly with a clear introduction, body, and conclusion. Audience-specific considerations (technical level, interests, etc.) are addressed throughout.	<b>Argument is well-structured and clear,</b> with minor lapses in flow or audience-specific considerations. Introduction, body, and conclusion are present and effective, though some transitions could be smoother.	<b>Argument shows some structure</b> but may lack clear organization or coherence. Audience is only partially addressed, and there may be confusion or gaps in reasoning. Transitions are weak.	<b>Argument lacks organization</b> and is unclear or confusing. Audience is not appropriately considered, and there is little to no logical flow.
<b>2. Develops persuasive written communication</b>	<b>Highly persuasive argument.</b> Clearly and convincingly presents reasons, benefits, or advantages. Strong evidence supports claims, tailored to the needs of the audience. Persuasion is highly effective.	<b>Persuasive and convincing,</b> with some strong points supported by evidence. There may be minor gaps in persuasiveness or areas where more detail could strengthen the argument.	<b>Somewhat persuasive,</b> but key points are underdeveloped or lack sufficient evidence. The argument could benefit from stronger rationale or deeper consideration of the audience's concerns.	<b>Unpersuasive or ineffective.</b> Lacks convincing rationale, evidence, or clarity. The argument is weak or not compelling, leaving the audience unconvinced.
<b>3. Formulates accurate technical explanations</b>	<b>Technical explanations are highly accurate,</b> detailed, and clear. All key concepts are thoroughly explained, and the level of technical detail is appropriate for the audience (technical or non-technical).	<b>Technical explanations are accurate,</b> with some minor errors or gaps in detail. The explanation is clear and mostly appropriate for the intended audience.	<b>Technical explanations have notable errors</b> or omissions. Key concepts are not fully explained or are inaccurate. The explanation may be overly simplified or overly complex for the audience.	<b>Technical explanations are mostly inaccurate</b> or unclear. Significant misunderstandings or gaps in explanation make it difficult for the audience to understand.
<b>4. Uses graphical communication with clear labeling and overall visual organization</b>	<b>Graphics are clear, well-labeled, and highly effective</b> in communicating the intended information. Visuals are appropriately detailed and enhance the reader's understanding of the content. Organization is exemplary.	<b>Graphics are clear and mostly well-labeled.</b> They support the written content and are generally well-organized, though minor improvements in clarity or labeling could be made.	<b>Graphics are somewhat unclear</b> or not fully labeled. Visuals may not effectively support the written content or may have minor organizational issues, detracting from the overall clarity.	<b>Graphics are unclear, poorly labeled, or disorganized.</b> Visuals do not effectively communicate the intended information and detract from the overall quality of the explanation.

(G Rogers and R Hall, Assessment Institute, 2024)

**Prompt:** *Act as an expert in AI. What advice would you give to someone about how to develop their prompts for AI input*

**Response:** When developing prompts for AI input, especially for models like me, the quality of the output is highly influenced by the clarity, specificity, and structure of the input. Here's some advice for creating effective prompts:

1. **Be Clear and Specific**

- **Avoid ambiguity:** Vague or unclear prompts lead to equally vague responses. Specify exactly what you're asking for.
- **Context helps:** Provide sufficient context for the AI to understand your request. Instead of saying, "Explain this," say, "Explain how photosynthesis works in plants."
- **Ask for step-by-step answers:** If you're asking for a process, like a tutorial or instructions, specify that you'd like a step-by-step guide.

**Example:**

- Instead of: "Write a story"
- Try: "Write a 300-word short story about a detective solving a mystery in a futuristic city."

2. **Define Your Desired Output Format**

- Let the AI know how you'd like your response structured. For example, if you need a bulleted list, a comparison table, or a detailed explanation, be specific.
- **Examples, lists, tables:** If you prefer structured data (e.g., bullet points or numbered lists), explicitly request it.

**Example:**

- "List three key benefits of cloud computing in bullet points."
- "Summarize this article in 5 key points."

3. **Iterate and Experiment**

- Sometimes the first output isn't exactly what you want. Modify the prompt based on what the AI returned, making it more specific or changing the focus slightly.
- If a prompt isn't working as intended, try asking the same thing in a different way or breaking it down into smaller parts.

**Example:**

- If "Explain neural networks" is too broad, you might try: "Explain the structure of a neural network with examples."
- Or: "Explain how backpropagation works in a neural network."

4. **Use Constraints**

- You can specify constraints like length, tone, or style. For instance, you might ask the AI to summarize a topic in 50 words, write in a formal or informal tone, or use non-technical language.

**Example:**

- **"Summarize the theory of relativity in simple terms that a 10-year-old could understand, in less than 100 words."**

5. **Avoid Overloading or Being Too Complex**

- Don't overload the prompt with too many questions or complex requests at once. This can confuse the AI and lead to suboptimal responses. If you have multiple requests, break them into separate prompts.

**Example:**

- Instead of: **"Tell me about the history of AI, how machine learning works, and the future of robotics."**

- Try: **"Tell me about the history of AI."** (then ask the next questions in separate prompts)

6. **Incorporate Examples for Clarification**

- If you're asking for a creative response (e.g., writing, coding), include examples of what you want. This helps the AI understand your preferences and style.

**Example:**

- **"Write a blog post introduction about the benefits of remote work, in a friendly and engaging tone, similar to this: [insert sample]."**

7. **Consider Sequential Prompting**

- For complex tasks, use a series of prompts. You can ask the AI to generate an outline first, then ask it to expand on certain sections.

- This is particularly useful for long-form content generation or structured outputs like reports, articles, or stories.

**Example:**

- **"Outline the key steps involved in training a machine learning model."**

- Follow up: **"Expand on the first step of data preprocessing."**

8. **State Assumptions or Domain Knowledge**

- If your task involves technical or specialized topics, mention any assumptions or the level of knowledge the response should assume.

- Indicate the target audience's knowledge level (e.g., beginner, intermediate, or expert) to ensure the response is appropriately pitched.

**Example:**

- **"Explain the concept of blockchain to a beginner with no prior knowledge."**

9. **Ask for Multiple Options**

- If you want to explore creative possibilities, you can ask for multiple versions of a response. This works well for brainstorming or getting varied perspectives.

**Example:**

- **"Give me three different ideas for marketing a new eco-friendly water bottle."**

10. **Use Follow-up Prompts**

- After getting an answer, if it's not quite what you need, refine it. You can clarify, expand, or narrow down the original request in follow-up prompts.

**\*\*Example:\*\***

- If the answer was too technical: **\*\*"Can you simplify that explanation further?"\*\***
- If the response lacks detail: **\*\*"Can you elaborate on the challenges involved in this approach?"\*\***

**Summary:**

- **\*\*Be clear and specific\*\***: Know exactly what you want to ask.
- **\*\*Structure matters\*\***: Specify format, tone, or length.
- **\*\*Iterate\*\***: Don't be afraid to tweak and refine your prompt.
- **\*\*Constraints\*\***: Use length or style restrictions to guide responses.
- **\*\*Sequential prompting\*\***: Break down complex tasks into steps.

Mastering these techniques will help you get more effective, tailored, and creative responses from AI systems.