

AI Instruction Guide

University Libraries

OVERVIEW & PURPOSE

This guide covers AI literacy topics for instruction librarians, focusing on three core areas: AI Basics, Using GenAI, and Ethical Considerations.

General AI Best Practices for Students

University AI Policies:

- No university-wide AI policy in place; instructors determine appropriate use
- As of Fall 2025, instructors must include AI statements in syllabi:
 - Green Light: AI permitted with proper citation
 - Yellow Light: AI use regulated with specific guidelines
 - Red Light: AI prohibited for all assignments

Key question for students: What are you here to learn? Students should consider whether there is VALUE in the task they're using AI to replace or assist with. AI should not be used where independent completion serves learning objectives.

1. AI BASICS

Key Terms

Artificial Intelligence (AI): Systems that simulate human intelligence through programming to mimic behaviors and thought processes. Modern AI focuses on learning, decision-making, and adaptation through pattern recognition and natural language processing.

Generative AI (GenAI): AI models designed to respond to user "prompts" and generate new content (text, images, videos). Built on deep learning architectures that predict responses based on training data.

Large Language Models (LLMs): Types of GenAI (ChatGPT, Google Gemini, Microsoft Copilot) that use machine learning to train on massive amounts of text and code data. They use statistical patterns to predict what comes next in a sentence; they are not searchable databases.

What GenAI Can and Cannot Do

GenAI CAN:

- Act as a thinking partner by generating quiz questions and providing feedback
- Assist with explaining complex topics
- Brainstorm research ideas and create outlines
- Synthesize research findings to identify themes
- Develop and refine questions

GenAI CANNOT:

- Think, reason, or replace critical thinking, empathy, or creativity
- Provide accurate citations without fact-checking
- Understand human emotion or make ethical judgments
- Synthesize historical context, culture, and psychology effectively
- Complete assignments appropriately without human oversight

Teaching Example: Human vs. AI Analysis

Using ChatGPT to illustrate a Symbolist poem demonstrates AI limitations. When given basic instructions to generate an image of the poem, AI focuses on literal keywords. When provided with historical context and literary interpretation, the AI often abandons key elements (like moonlight in "Clair de lune") because it cannot draw on subconscious knowledge or intuition to understand culture and psychology. This shows students that the human element in any AI collaboration is the most important.

2. USING GenAI

Popular GenAI Tools by Purpose

- **Text-based chatbots:** ChatGPT, Claude, Gemini, Copilot (*Note: most are multi-modal, which can process text, images, and videos*)

- **Text-to-image:** Midjourney, Adobe Firefly
- **Text-to-video:** Sora (OpenAI), Gemini (Google Veo AI)
- **Coding:** Github Copilot, OpenAI Codex, Claude Code
- **Research:** NotebookLM, Consensus, Perplexity, Scite, Research Rabbit

Note: OU students can access Copilot 365 with enhanced data protection using OU credentials.

Prompt Crafting/Engineering

Prompts are simply the input you give GenAI models. Writing *good* prompts is important for the quality of the output. Tailored prompts reduce the risk of hallucinations, biases, errors, repetitiveness, irrelevancy, and computational costs. *In general, a good prompt will assign the GenAI tool a role to play, explain what the tool is supposed to do, give step-by-step instructions, and provide examples/context to guide the output.* The first formalized pedagogical approach to prompt engineering was developed to follow the ACRL Information Literacy framework (CLEAR Framework, Leo S. Lo, 2023):

C - Concise: Remove superfluous information, use specific and directed questions

- Example: "Explain the process of photosynthesis and its significance" vs. "Can you provide me with a detailed explanation..."

L - Logical: Structure prompts with natural progression and clear relationships

- Example: "List steps to write a research paper, beginning with topic selection and ending with proofreading"

E - Explicit: Provide clear output specifications regarding format, content, and scope

- Example: "Provide a concise overview of the French Revolution, emphasizing causes, major events, and consequences"

A - Adaptive: Be flexible and experiment with different formulations based on GenAI performance

- If "Discuss social media's impact on mental health" is too general, try "Examine the relationship between social media usage and anxiety in adolescents"

R - Reflective: Continuously evaluate and improve prompts based on output quality

- After receiving GenAI content, assess accuracy, relevance, and completeness to refine future prompts

Output Analysis and Verification

Use the **SIFT Method** (Caulfield, 2019) to evaluate GenAI outputs:

Stop: Consider what you know about the topic. How does the output compare to expectations? Is it ambiguous or one-sided?

Investigate the Source: For sources provided by GenAI models, cross-reference with library databases. For AI overviews in Google search, check if links exist and lead to legitimate sources. Verify claims match the original sources.

Find Better Coverage: Use lateral reading and fact-checkers (Factcheck.org, Snopes, PolitiFact) to see if other sources agree or disagree.

Trace Claims: Follow links to original sources. Can you find these sources in library databases? Are citations accurate and fairly represented?

3. ETHICAL CONSIDERATIONS

Environmental Impact

AI has significant environmental costs often hidden from users:

Water Consumption: ChatGPT uses approximately 16 ounces of water per 10-50 prompts for server cooling per medium length (~150-200 words or 200-300 tokens) query while millions lack access to clean drinking water. Water is also used by the power plants generating the electricity to power data centers. Water consumption depends on timing (i.e. summer, winter, night, day) and the local climate of server locations (O'Brien and Fingerhut, 2023; Ren, 2023).

Energy Usage: GenAI requires specialized GPUs in large data centers. Global data centers are projected to double electricity consumption by 2026, bumping them up to 5th place on the global list between Japan and Russia's total consumption (Berrerby, 2024). Different GenAI models have varying efficiency, so choices can be made to use less demanding models.

Carbon Emissions: The computing power needed for GenAI requires energy sources, by either increasing the consumption of natural gas or demanding new sources such as renewable energy. Energy demands accelerate global environmental concerns that are already impacted by climate change. Data center carbon emissions are projected to double by 2030, accounting for 0.6% of global energy emissions if natural gas continues as the primary source of energy (Kimball, 2024).

User Safety and Privacy

Data Use Considerations:

- Input prompts may be used for further AI training depending on platform policies
- HIPAA, FERPA, and personally identifiable information should never be used with GenAI tools and prompts
- Intellectual property may be compromised through data breaches or training use
- Always read data storage and training policies before use

Closed vs. Open-Source Models:

- **Closed-source** (ChatGPT, Gemini): Dedicated support but data processed on potentially vulnerable servers. Potentially greater long-term environmental impact due to proprietary nature.
- **Open-source** (Llama 3, Grok): Customizable and community-driven but often lack official support. Potentially lesser long-term environmental impact due to shared resources and training.

Bias in AI Systems

AI models reflect the biases present in their training data, which includes Wikipedia, pirated books, and web archives that mirror societal norms and inequalities.

Key Bias Areas:

Gender: AI perpetuates binary gender stereotypes. As an example, when asked to list adjectives for men and women, a model might describe men with traits linked to power and authority while women are categorized by appearance and nurturing roles.

Race and Western-Centric Bias: AI models align strongly with WEIRD (Western, Educated, Industrialized, Rich, Democratic) societies (Atari et al. 2023). Performance declines as cultures move away from Western norms. When asked indirect questions

about terrorism, AI predominantly provides examples of Islamic terrorism despite safety guardrails.

Neuronormativity and Ableism: Recommending AI to help students conform to "standard" communication can pressure conformity rather than value diverse communication styles and silence authentic voices.

Academic Integrity and Cognitive Debt

Current Usage Patterns: Research shows ~50% of students use AI for direct problem solving and ~50% for collaborative learning. AI primarily handles higher-order thinking (Creating 39.8%, Analyzing 30.2%), creating an "inverted pyramid" of cognitive development (Handa et al., 2025).

Critical Thinking Shifts: AI changes critical thinking from (Lee et al., 2025):

- Information gathering → Information verification:
 - Instead of spending time collecting information, the focus is now on evaluating AI output. This develops skills to cross-reference sources, identify biases in AI training data, recognize hallucinations, and assess the relevance of AI-generated content. Critical thinking changes from "Where can I find this?" to "How reliable is this? What influenced this? What might be missing?"
- Problem-solving → AI response integration:
 - Rather than working through problems step-by-step alone, you now "collaborate" with AI and act as the expert to determine effective prompts, evaluate AI outputs/solutions, look at different approaches, and identify which elements to combine or discard. The skill becomes knowing how to frame problems for AI, interpret its reasoning, and combine AI-generated content with your own understanding and context.
- Task execution → Task stewardship:
 - Completing tasks directly changes to *orchestrating* them. This involves breaking complex work into AI-manageable components and knowing that human oversight is the most important part. This develops skills by being responsible for the overall direction, standards, and outcomes while the AI handles specific execution elements. You now focus your cognitive skills on judgment, creativity, and strategic oversight rather than routine information processing and execution.

The challenge lies in balancing practical AI skills for workforce preparation with concerns about academic misconduct. Key factors influencing student AI use include (Lee et al., 2025):

Motivators for Critical Thinking: Improvement in work quality, avoidance of negative outcomes, skill development

Inhibitors for Critical Thinking: Awareness barriers (trust in AI), motivation barriers (lack of time), ability barriers (insufficient domain knowledge to evaluate output)

Addressing Misconduct: Understanding why students plagiarize (poor training, heavy workloads, unclear guidelines, inadequate support) can help instructors create better policies and integrate AI instruction that is aligned with student learning objectives.

Labor and Copyright Considerations

Hidden Human Labor: AI systems rely on underpaid data annotators and content moderators who face psychological trauma from exposure to harmful material. Mining, transportation, and "crowdsourcing" labor support AI infrastructure.

Copyright Status: Early court rulings suggest training LLMs on books qualifies as fair use due to transformative nature. However, use of pirated materials from shadow libraries faces ongoing litigation and potential settlements.

Recommendations for Instructional Use

Teach Critical Evaluation: Use prompt engineering to mitigate cognitive debt and reduce computational demand. Use the SIFT method to critically evaluate output.

Address Bias: Students should develop awareness of inequality and implicit bias, reflect on how these issues affect their lives, and use prompts that seek balanced perspectives rather than reinforcing assumptions.

Offer Alternatives: Educate students on the ethical challenges and provide non-AI options for students concerned about ethical implications.

Address Cognitive Debt: Structure and scaffold assignments to require human insight and original thinking.

Emphasize Information Literacy: Focus on verification, source evaluation, and

responsible use.

Additional Resources

- **Bloom's StAIrcase:** GenAI-integrated activities for various disciplines that can be selected for specific learning objectives under Bloom's taxonomy:
<https://bakerxn.github.io/blooms-stAIrcase/>

This guide serves as a living document and will be updated as new tools, best practices, and ethical considerations emerge.