



# **Integrating Generative AI into Scientific Creativity and Integrity Training**

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**CABTRAC Annual Meeting – October 28, 2025**

**How many of you are using generative AI?**

**How many of you trust its outputs > 90%?**

# AI literacy = prompt → verify → attribute

*“Pick Your Poison”* - course

End-of-semester project: a **3-minute** educational video on a toxin of the student’s choice

Literature search

Script writing

Recording & editing

Grading



## Literature search

### Google vs AI literature search (in class)

AI results might have:

- Hallucination – *open and check pdf, verify the DOI*
- Training gaps/bias – *request counter-evidence from the last 24 months, then triangulate*
- Misread figures – *student verifies*

## Additional tools

**Consensus** – AI search for research

AI can summarize and explain the scientific publication (*Models often struggle with chemistry-specific notation, figures, and spectra*)



# Promoting Creativity

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## Script writing

Idea brainstorm: *“How do we make this script engaging and accurate?”*

## Recording and video editing

### Tetrodotoxin





# Grading

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- **Accuracy** (primary sources cited with figure/page)
- **Provenance** (prompts + drafts present; viva passed)
- **Creativity** (novel framing; audience fit)
- **Attribution** (model/date/prompts disclosed)

# PAIR-based workflow with Gen AI to boost creativity and integrity with GenAI in STEM

- *Prompt*: context, constraints, audience.
- *Audit*: highlight **two claims** they verified and verify in PDFs
- *Iterate*: show the improved second prompt/output
- *Record* provenance: paste prompts + timestamps + model name in an appendix

# Avoiding Plagiarism

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## Common practice:

- **Process artifacts:** outline + draft(s); prompt log if AI; PDFs with highlighted evidence
- **Short viva (~2 min):** explain one claim + one limitation; show exact PDF location
- **AI attribution:** model + version/date; key prompts; how used
- **Primary evidence:** cite the primary source (PDF/DOI); point to figure/table/page
- **Fairness stance:** provenance > policing; missing or unverifiable artifacts may violate policy

# Outcomes from My Class

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- Fewer miscited review articles after the “Google vs AI” search
- Better openings in 3-min videos using your prompt scaffold
- Faster fact-checks in office hours/class with PDF highlighting
- Students mastered material and AI literacy

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➤ **Prompt template (creativity):**

*“You are a science script coach. Audience: pre-health undergrads. Task: pitch 3 opening hooks for a 3-minute explainer on tetrodotoxin. Constraints: factual, cite 2 primary sources (DOI), 45-word max per hook, conversational tone.”*

➤ **Counter-evidence prompt (bias/limits):**

*“List peer-reviewed studies from the last 24 months that **contradict or complicate** the claim: ‘X’. Return DOIs and 1-sentence summaries. If none, say ‘none found’.”*

➤ **Attribution line (students copy-paste):**

*“GenAI assistance: ChatGPT (GPT-5, Oct 24, 2025). Used for brainstorm and wording passes. Key prompts and timestamps attached in Appendix A. All claims verified in [DOI list].”*